JULY 1955

BUTANE-PROPANE News

Headquarters for L.P. gas Information Since 1931

TECHNOLOGY

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FIFTY CENTS PER COPY

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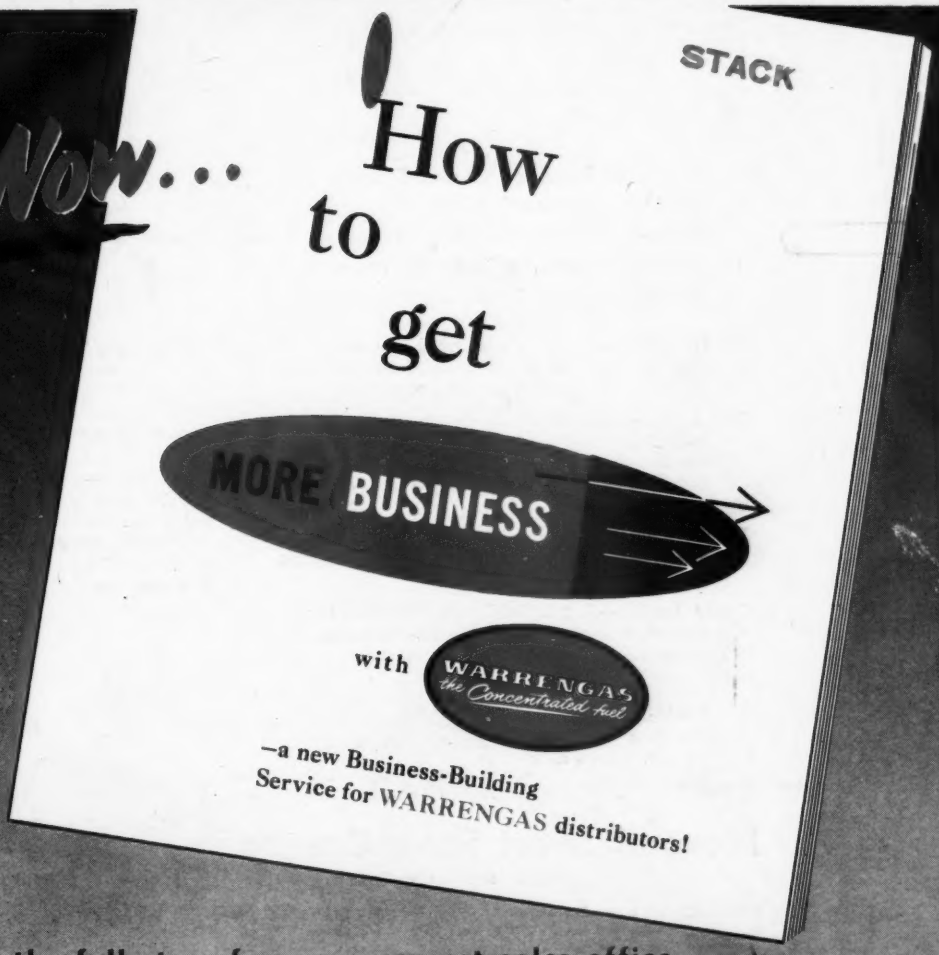

You can get the full story from our nearest sales office . . .

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WARRENGAS
the Concentrated fuel

WARREN PETROLEUM CORPORATION
TULSA, OKLAHOMA

BIG ON VALUE

PC–420 A

BIG-sized Hackney LP-Gas Cylinders give you the same BIG values that have made the famous Hackney 100-pound propane capacity cylinder the most popular cylinder in the industry.

Extra Protection—against rusting and corrosion. Service-tested undercoating. Can furnish all sizes hot dip galvanized. Ventilated foot ring.

Extra Strong—Made of high-strength steel—scientifically heat-treated for greater resistance to hard knocks. Extra-heavy foot ring. Two-piece construction has one-third the seam area of three-piece cylinders.

Extra Light—Hackney two-piece deep drawn cylinders are easy to handle—their low tare weight saves transportation costs.

Extra Attractive—Streamlined shape. Neat welds and smooth surfaces, evenly painted—all add to the good looks your customers appreciate.

Extra-Clear Stamping—Hackney "depth-controlled" stamping is always easy to read—saves time—prevents errors. If desired, company name can be permanently embossed with large raised letters in protection collar.

EXTRA SAVINGS—Hackney extra values reduce handling and maintenance costs—give you more value for your cylinder dollar.

Write for additional information on Hackney vertical and horizontal cylinders for permanent installations.

Protection collar, showing embossed name for easy identification.

RH–300 A

Pressed Steel Tank Company

Manufacturer of Hackney Products

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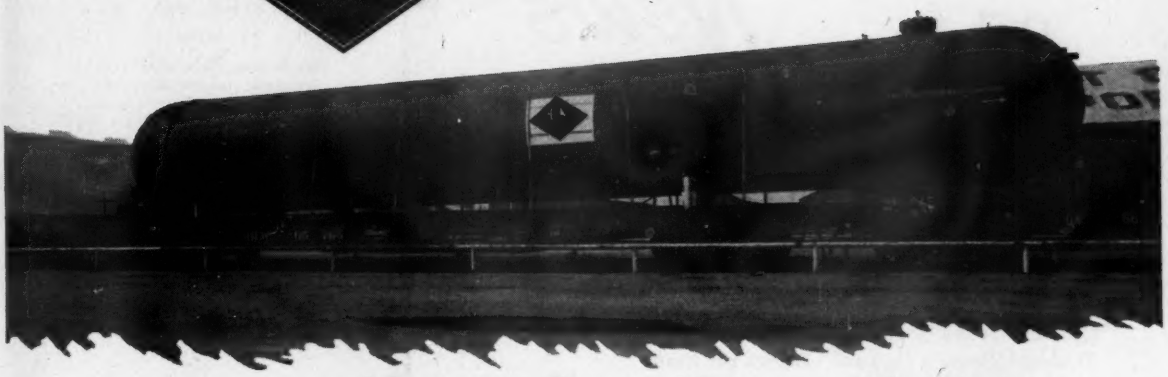
138 Wallace Ave., Downingtown, Pa.

Downingtown Iron Works, Inc., Division
Downingtown, Pennsylvania

LP-GAS CONTAINERS FROM ONE POUND TO 30,000 GALLONS

R v.17 no.7-12 July-Dec. 1955

MADE BY
FLINT
STEEL CORPORATION
MEMPHIS, TENN.



MORE FOR YOUR MONEY
you name the size . . .

Of course, Flint Tanks for the handling of liquefied gases, that must be stored under pressure, are fabricated in accordance with ASME Code for 250 psi working pressure. They meet and exceed all requirements of U-69. Every plate and completed vessel is shop inspected. Modern fabricating methods take advantage of good design — with press fitting to close tolerances, machine welding and facilities available for X-ray and stress relief inspection.

But more than these Flint provides the advantges of a major plate steel fabricator; complete integration of facilities of the Tulsa and Memphis plants employing volume production methods, and the know how accumulated during forty years of service as a "tank builder."

Flint builds every size LPG tank for Domestic Systems to the largest Bulk Plant Unit.

Also distributed and sold by

ANCO

East St. Louis, Ill.

Tulsa, Okla.

and a new office in Des Moines, Iowa Insurance Exchange Bldg. Phone 4-5347

L. P. G. TANK SIZES	
250 Gal. 30" dia. x 92" O.A.L.	8,000 Gal. 72" dia. x 39'-7" O.A.L.
330 Gal. 30" dia. x 116" O.A.L.	10,000 Gal. 72" dia. x 49' O.A.L.
500 Gal. 37" dia. x 120" O.A.L.	12,000 Gal. 72" dia. x 58'-1" O.A.L.
1,000 Gal. 41" dia. x 193" O.A.L.	18,000 Gal. 94" dia. x 51'-6" O.A.L.
6,000 Gal. 60" dia. x 43' O.A.L.	30,000 Gal. 106" dia. x 68'-4" O.A.L.
7,145 Gal. 60" dia. x 51' O.A.L.	

TECHNOLOGY
1669766

WRITE FOR ILLUSTRATED CATALOG

FLINT STEEL CORPORATION

MEMPHIS, TENNESSEE • TULSA, OKLAHOMA

JULY 1955

BUTANE-PROPANE News

NBP

VOLUME 17 • NUMBER 7

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BPN

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BUTANE-PROPANE News is published monthly. Copyright 1955 by Jenkins Publications, Inc., at 198 So. Alvarado St., Los Angeles 57, California. Subscription price: United States, U. S. possessions and Canada: 50c per copy; one year, $2; two years, $3. Mexico, South and Central America, Caribbean area: one year, $3; two years, $5. All other countries, $10 per year. Entered as second-class matter May 29, 1939, at the post office at Los Angeles, California, under the Act of March 8, 1879. Member of Business Publications Audit of Circulation, Inc., Liquefied Gas Assn., National Fire Protection Assn.

Publishers: GAS, The Magazine of the Gas Utility and Pipeline Industry; HANDBOOK BUTANE-PROPANE GASES; THE BOTTLED GAS MANUAL; BUTANE-PROPANE POWER MANUAL; Annual BUTANE-PROPANE News CATALOG; LPG BULK PLANT MAILING LIST SERVICE; WESTERN METALS. The name "BUTANE-PROPANE News" is registered, U. S. Patent Office.

Confidence...

Like the airline pilot who places complete confidence in an airport beacon to help guide him . . . you can place complete confidence in Beacon Petroleum to guide you through your busiest season. The finest quality Butane-Propane, delivered where needed, when needed has made Beacon a leader in the LPG field. Beacon Petroleum has the facilities to help *your* business grow . . . why not investigate?

BEACONGAS

OFFERS YOU . . .

- **the Finest LP Gas**
  NGAA Butane-Propane
- **Ample Storage**
  to meet your every need
- **Dependable Production**
  to meet seasonal demands
- **Prompt Shipment**
  Tank car fleet assures delivery

BEACONGAS

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PETROLEUM COMPANY

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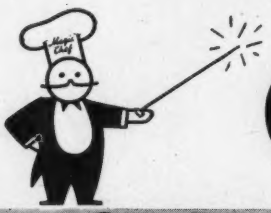
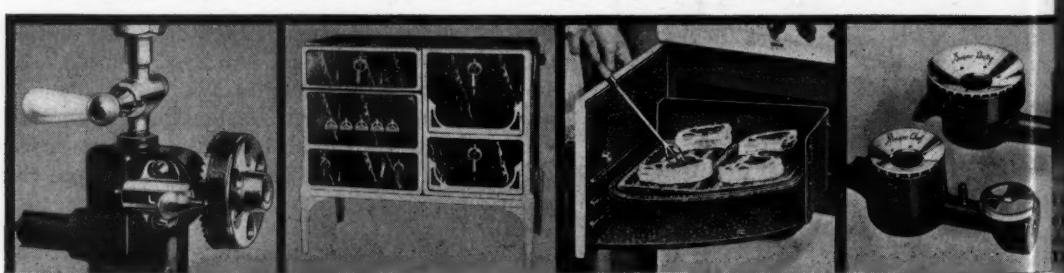


Our Seven

AS THE SEVEN MILLIONTH RANGE in the history of the company rolls off the line, Cecil M. Dunn, President, Magic Chef, Inc., at the right of the range, acce a symbol of the occasion from Chairman of the Board Arthur Stockstrom. The memento is a model of one of the company's first cooking stoves, built around turn of the century. Others in the photograph grouped around the range are, left to right: K. O. Dupree, General Sales Mgr.; Al Gruer, Assistant to the Preside W. T. Trueblood, Merchandise Mgr.; Gas Ranges, Richard Blankenship, Plant Mgr.; A. M. Wyman, Director of Advertising and Sales Promotion; James Marohn, Vice President Finance & Treasurer; John J. Fendya, Industrial Relations Mgr.

MORE THAN FIFTY YEARS OF LEADERSHIP

lie behind the occasion pictured above. The last half century has seen *Magic Chef* pioneer many of the developments that are now standard in the industry. Illustrated below are just a few of the many *Magic Chef* "firsts" which have made gas range history . . .



FIRST DOMESTIC RANGE OVEN HEAT REGULATOR!

FIRST TABLE TOP DOMESTIC RANGE DESIGN!

FIRST GRID TYPE SWING OUT SMOKELESS BROILER!

FIRST ROUND NON-CLOG BURNERS!

BIG things are happening a

Millionth range

rolls off the assembly line for your

'Mrs. America®'

. . . proving again

MORE WOMEN COOK ON

Magic Chef

THAN ON ANY OTHER RANGE

RS. AMERICA" OF 1955 . . . Mrs. Ramona (Carl) temeyer of Lincoln, Nebraska, was chosen for her lity as a homemaker, as well as her beauty and charm. ymbol of millions of other "Mrs. Americas," Mrs. temeyer prefers cooking on a modern GAS range.

Your best customers . . . the "Mrs. America's" throughout the land!

Anybody who's sold appliances successfully knows that *value* isn't "a sometimes thing." You deliver it consistently in this business, or you aren't around long enough to figure out why. And therein, we believe, lies the REAL reason behind the *consumer* acceptance of *Magic Chef* today. It can be summed up in three words: *SEVEN MILLION RANGES.* More eloquently than any claims, this tremendous production figure speaks volumes for the quality and value built into the products carrying the *Magic Chef* name. In consumer preference survey after survey, *Magic Chef* continues to lead the field, and we intend to keep it that way. Today *Magic Chef* is going all-out to make it easier and even more desirable for homemakers to buy—and retailers to SELL. BIG things are happening *now,* and you can profit from them by featuring the "One and Only" *Magic Chef!*

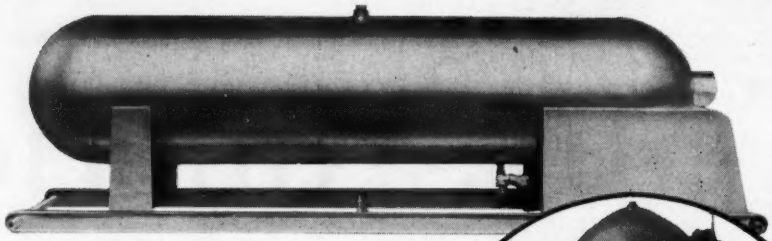
ENTER THE MAGIC CHEF "MAGIC KEY" CONTEST
Nothing to do—nothing to buy. Win a new Golden **FORD THUNDERBIRD** or one of many other valuable prizes! For complete rules see entry blank.

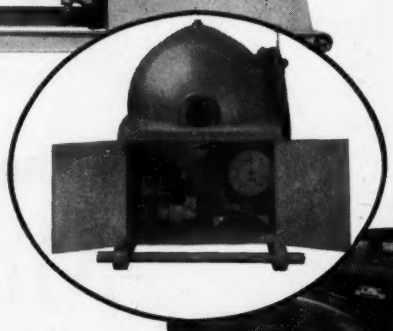
Magic Chef!

MAGIC CHEF, INC., ST. LOUIS 10, MISSOURI

KEEP YOUR LP-G BUSINESS YEAR 'ROUND WITH Nor-Tex

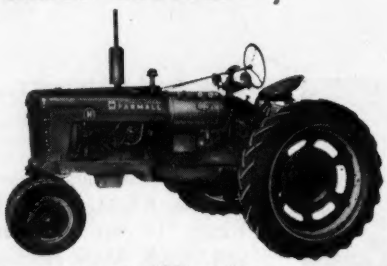
Make It Easy and Convenient for Your Customers TO BUY AND USE LP-GAS





Nor-Tex "PONIES" (strategically placed for best distribution) can substantially boost year 'round sales and quotas. Operate them yourself or arrange with highway service stations to dispense LP-Gas for you. Nor-Tex portable "PONIES" can be easily placed on farms, ranches, in truck and bus terminals and "on-the-job" for contractors and utility companies. Nor-Tex "PONIES" are the result of many years experience and painstaking efforts by men in the bulk plant phase of the industry, thoroughly familiar with the actual filling of fuel tanks, bottles, etc. Each "PONY" is carefully tested for the efficient, safe, trouble-free dispensing of LP-Gas. Note the large cabinet with its convenient arrangement of fittings and ample meter room. Nor-Tex "PONIES" meet all requirements — U-69 — W250 Codes. Sizes: 500, 700, 1000, 2000, 3000 and 4000 WG. Can be equipped with your choice of popular pumps, meters and accessories.

Selling Profitable Tractor Conversions Is A Real Customer Service



Conversion business is booming! Users report up to 60% savings on fuel . . . Oil consumption reduced to 80% . . . Engine wear reduced 75% . . . 2 to 1 engine life ratio . . . Oil dilution and carbon deposits eliminated . . . Repairs slight . . . Replacement of parts practically nil! TELL these advantages of LP-Gas in Internal Combustion Engines and you'll SELL conversions of all types of mobile and stationary equipment.

WE ARE AUTHORIZED TRUCK DISTRIBUTORS

WRITE, WIRE OR PHONE FOR PRICES

Nor-Tex PRODUCTS COMPANY

National Sales Agents for

PREPARE NOW to serve this Rich LP-G Market!

There are Nor-Tex Conversion Fuel Tanks now in use on trucks, busses, cabs, pleasure and business vehicles, tractors and farm machinery, pumps, construction and earth moving equipment, materials handling equipment, pipelines and drilling equipment . . . in fact on all types of Internal Combustion Engines. You can buy custom-built Nor-Tex fuel tanks at "production line prices," complete with mounting brackets and fittings. Just bolt it on and connect it up.

BALANCE YOUR LOAD THE

NORTH TEXAS

IN PROFITABLE BALANCE
Specially DESIGNED UNITS

LOWER OPERATING COST

HIGHER EARNING ABILITY

LOWER DELIVERY PRICE

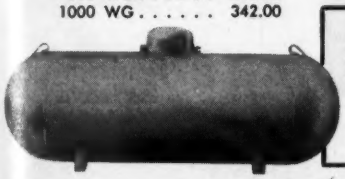
For value . . . the Nor-Tex Standard Twin "Package Unit" can't be beat! Low delivery price includes features not found in any other combination. It's plumbed, perfectly balanced and comes complete with Recessed Fuel Tank and Viking KK 200 Pump with Mechanical Seal plus 50' Filler Hose, ICC Lights and Power Take-off with Spline Jack Shaft. The finish is Aluminum Paint over Red Oxide. Immediate delivery on completely equipped units — ready to go — 1250 WG to 1800 WG. Your choice of new 1955 Reo, Ford, Chevrolet, International or GMC trucks.

Every Unit Priced Completely Equipped and Ready to Go . . . Excise Tax Paid.

POPULAR NOR-TEX STAR Domestic Tanks

Immediate delivery on one or truck load lots. Every custom designed Nor-Tex Star is fabricated to rigid specifications and double tested. They exceed national, state and local requirements. Each tank is smoothly finished and aluminum painted over red oxide. These are the safest, finest quality tanks you can buy.

250 WG	$128.00
500 WG	200.00
1000 WG	342.00



Manufacturers of Fine LPG Equipment

NOTE: All Nor-Tex Star Domestic Tanks of 500 WG or more include a convenient liquid line outlet for wet line connection to tractor fuel tank.

MONEY BACK GUARANTEE

Time Saving FARM CART

Spots Your Fuel Where You Need It

This well-baffled Nor-Tex Scout is easy to "spot" with car, truck or tractor. Complete with recessed relief valve, 12½' delivery hose, ¾" OIC valve and hose coupling. Mounted on a heavy duty axle with standard Chevrolet hub and 15" wheels.

300 WG
NOR-TEX SCOUT

$250.00
LESS TIRES

Completely Safe!

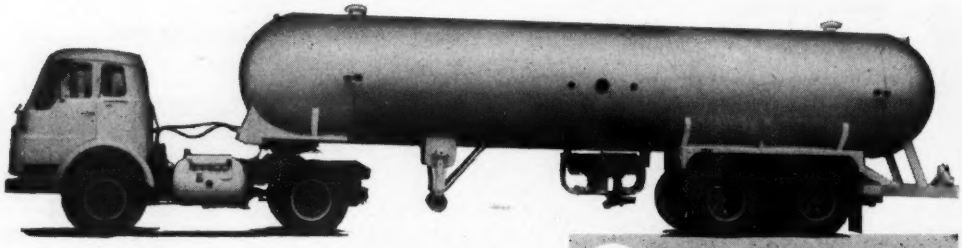
NOR-TEX WAY — FINANCE THE BALANCE

TANK CO.

P. O. BOX 1219
DENTON, TEXAS
CENTRAL 5416

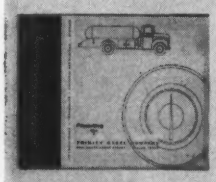
ANY WAY YOU LOOK AT IT

TRINITY quality pays off . . . with bigger profits for you! Our reputation among dealers from coast to coast is built upon our policy of giving you the product that best suits your needs, and does the job better. Precision is the TRINITY watchword that cuts your operating costs . . . and boosts your profits!



TRINITY Tandem Axle "Blimp" Transports mean bonus profits. No more dead weight hauling . . . bigger payloads . . . X-Rayed and Stress Relieved. Highest quality materials and skillful engineering are Trinity's guarantee.

TRINITY MODEL NO. 106 is engineered to fit your chassis. Tanks are painted with DuPont Dulux white over red oxide with chassis matching skirting.



the NEW TRINITY STORY

WRITE TODAY for your copy of TRINITY'S Famous catalog "The Trinity Story." This beautiful 12-page booklet covers all TRINITY trucks and tanks.

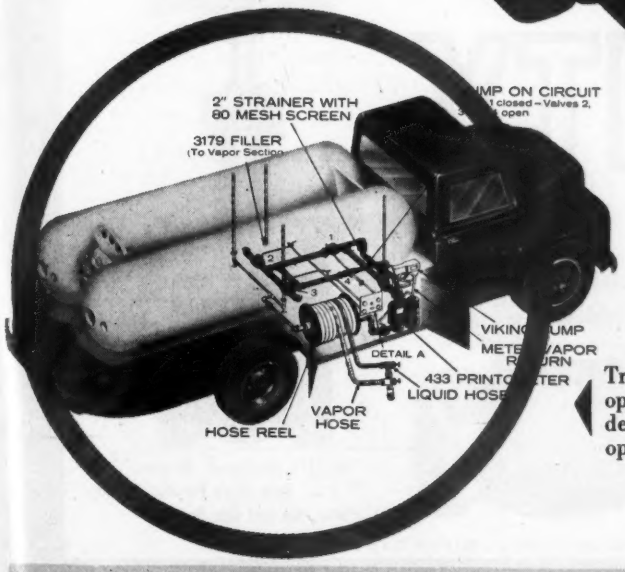
member LPGA

Be sure to visit the TRINITY BOOTH at the next convention and watch the famous TRINITY No. 106 in operation.

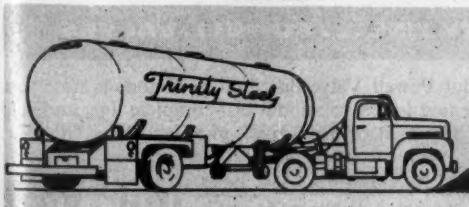
3301 SOUTH LAMAR STREET

TRINITY TRUCKS ARE PRECISION ENGINEERED!

TRINITY MODEL NO. 106 cuts operating costs . . . boosts your profits, because it was designed with LPG distributors needs in mind. Ruggedness, economy and skilled engineering are the qualities built into this and every Trinity tank.



Trinity Tank Plumbing is precision engineered for ease of operation, repair and replacement. Direct plumbing flow design permits maximum efficiency. Shown at left — optional 2-way plumbing.

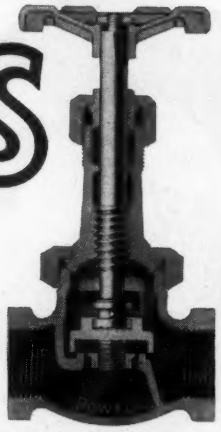


TRINITY STEEL COMPANY INC.
EVEREADY
GAS SYSTEMS
DALLAS, TEXAS • HUnter 8321

POWELL VALVES . . . THE COMPLETE QUALITY LINE . . . POWELL VALVES

. . . THE COMPLETE QUALITY LINE . . . POWELL VALVES . . . THE COMPLETE QUALITY LINE . . .

POWELL VALVES THE COMPLETE QUALITY LINE



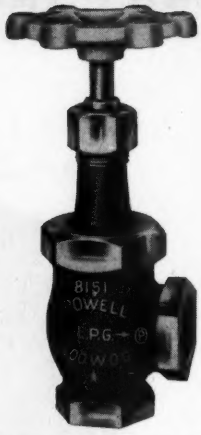


Fig. 8151—Bronze "L.P.G." Liquid Petroleum Gas Angle Valve for 400 Pounds Service.

Fig. 8150 (Sectional)—Bronze "L.P.G." Globe Valve For 400 Pounds Water, Oil and Gas Service.

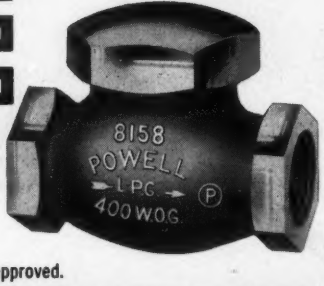


Fig. 8158—Bronze "L.P.G." Horizontal Lift Check Valve For 400 Pounds Water, Oil and Gas Service.

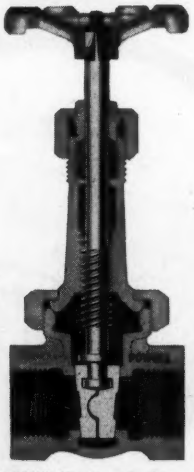


Fig. 8375 (Sectional)—Bronze "L.P.G." Gate Valve For 400 Pounds Water, Oil and Gas Service.

Globe, Angle and Check Valves are Underwriter approved.

POWELL VALVES . . . THE COMPLETE QUALITY LINE . . . POWELL VALVES

When you think of valves—think of Powell. For Powell has a *complete* quality line. Powell probably makes more kinds of valves and has solved more valve problems than any other organization in the world.

Shown above are a few Powell Valves for Propane, Butane service. Investigate this complete line of quality valves that have a proven record of dependable service.

Consult your Powell Valve distributor. If none is near you, we'll be pleased to tell you about our complete line, and help solve any flow control problems you may have. Write . . .

The Wm. Powell Company, Cincinnati 22, Ohio . . . . . 109th year

Here's the new who's who of LP GAS

On the following pages appears the Honor Roll of leading industry companies supporting the National LP-GAS Promotional Program as of June 1, 1955.

The bigger and better advertising, publicity and sales promotion campaign for LP-GAS and LP-GAS appliances and equipment is sending sales up! A new, powerful, local-level program is backing up the big national push.

Every company in the LP-GAS industry is urged to become a member and give its full support to this urgently needed effort. Let's work together to SELL together!

JOIN TODAY!

Write for membership form to:
National Council for LP-GAS Promotion
185 N. Wabash Ave., Chicago 1, Illinois

Co-sponsored by

GAS APPLIANCE MANUFACTURERS ASSOCIATION
LIQUEFIED PETROLEUM GAS ASSOCIATION
NATURAL GASOLINE ASSOCIATION OF AMERICA

TURN PAGE

HONOR ROLL—NATIONAL LP-GAS PROMOTIONAL PROGRAM

Appliance Manufacturers

Agricultural Eqpt. Corp.
La Junta, Colo.

Allcraft Mfg. Co.
Cambridge, Mass.

H. R. Basford Co.
San Francisco, Calif.

Bowser, Inc.
Cairo, Ill.

Bryant Division
of Carrier Corporation
Cleveland, Ohio

Caloric Appliance Corp.
Philadelphia, Pa.

Cargo-Guard Co.
Portland, Me.

Cleveland Heater Co.
Cleveland, Ohio

James B. Clow & Sons
Chicago, Ill.

Cobell Industries, Inc.
Fort Worth, Tex.

The Coleman Co.
Wichita, Kan.

Continental Water
Heater Co.
Los Angeles, Calif.

Cribben & Sexton Co.
Chicago, Ill.

Day & Night Division
of Carrier Corporation
Monrovia, Calif.

Dearborn Stove Co.
Dallas, Tex.

Detroit-Michigan
Stove Co.
Detroit, Mich.

Dixie Products, Inc.
Cleveland, Tenn.

Empire Stove Co.
Belleville, Ill.

FauceHot Heater Co.
La Porte, Ind.

Front Rank Mfg. Co.
St. Louis, Mo.

Hamilton Mfg. Co.
Two Rivers, Wis.

Handley Brown
Heater Co.
Jackson, Mich.

Hardwick Stove Co.
Cleveland, Tenn.

Hunt Heater Corp.
Nashville, Tenn.

Johnson Gas
Appliance Co.
Cedar Rapids, Ia.

Lovekin Water Heater Co.
Philadelphia, Pa.

Michigan Tank & Heater
Corp.
Dearborn, Mich.

Morley Mfg. Co.
Mascoutah, Ill.

National Steel
Construction Co.
Logansport, Ind.

Payne Division
of Carrier Corporation
Monrovia, Calif.

Peerless Manufacturing
Corp.
Louisville, Ky.

Power Manifold Co.
South Gate, Calif.

Queen Stove Works
Albert Lea, Minn.

Geo. D. Roper Corp.
Rockford, Ill.

J. Rose & Co.
Brooklyn, N.Y.

Ruud Manufacturing Co.
Pittsburgh, Pa.

Servel, Inc.
Evansville, Ind.

A. O. Smith Corp.
Kankakee, Ill.

Sunray Stove Co.
Delaware, Ohio

Tappan Stove Co.
Mansfield, Ohio

TEMCO, Inc.
Nashville, Tenn.

Western-Holly
Appliance Co.
Culver City, Calif.

D. W. Whitehead
Mfg. Corp.
Trenton, N. J.

A. R. Wood Mfg. Co.
Luverne, Minn.

John Wood Co.
Conshohocken, Pa.

Equipment Manufacturers

American Meter Co.
Philadelphia, Pa.

The Bastian-Blessing Co.
Chicago, Ill.

Charlotte Tank Corp.
Charlotte, N. C.

Corken's, Inc.
Oklahoma City, Okla.

Fisher Governor Co.
Marshalltown, Ia.

Gas-Kit Co., Inc.
Glastonbury, Conn.

The E. F. Griffiths Co.
Philadelphia, Pa.

D. H. Krug Co.
Madison, S. D.

Linde Air Products Co.
New York, N.Y.

Metalbestos Division
Wm. Wallace Co.
Belmont, Calif.

Pressed Steel Tank Co.
Milwaukee, Wis.

Roberts Brass Mfg. Co.
Mitchell, Ind.

Rochester Mfg. Co.
Rochester, N.Y.

Rockwell Mfg. Co.
Pittsburgh, Pa.

Selwyn-Pacific Co.
Los Angeles, Calif.

Stampings, Inc.
Davenport, Ia.

The Weatherhead Co.
Cleveland, Ohio

Suppliers to Manufacturers

Harper-Wyman Co.
Chicago, Ill.

Reliable Gas Products Co.
Cedar Rapids, Ia.

Robertshaw-Fulton
Controls Co.
Greensburg, Pa.

LP-Gas Producers

Atlantic Refining Co.
Dallas, Tex.

Cabot Carbon Co.
Pampa, Tex.

The California Co.
New Orleans, La.

Cities Service Oil Co.
Bartlesville, Okla.

Claiborne Gasoline Co.
Houston, Tex.

Coltexo Corporation
Houston, Tex.

Eason Oil Co.
Enid, Okla.

El Paso Natural Gas Co.
El Paso, Tex.

Grimes Gasoline Co.
Tulsa, Okla.

Gulf Oil Corp.
Pittsburgh, Pa.

Humble Oil &
Refining Co.
Houston, Tex.

Hunt Oil Co.
Dallas, Tex.

La Gloria Oil & Gas Co.
Corpus Christi, Tex.

Lone Star Producing Co.
Dallas, Tex.

Midland Gasoline Co.
Conroe, Tex.

The Ohio Oil Co.
Findlay, Ohio

Phillips Petroleum Co.
Bartlesville, Okla.

Shamrock Oil & Gas Corp.
Amarillo, Tex.

Shell Oil Co.
New York, N.Y.

Sinclair Oil & Gas Co.
Tulsa, Okla.

Sohio Petroleum Co.
Oklahoma City, Okla.

Southern Minerals Corp.
Corpus Christi, Tex.

The Standard Oil Co.
Cleveland, Ohio

Standard Oil Co. (Ind.)
Chicago, Ill.

Stanolind Oil and Gas Co.
Tulsa, Okla.

Sun Oil Co.
Dallas, Tex.

Sun Oil Co.
(Solgas Division)
Philadelphia, Pa.

Texas Natural
Gasoline Corp.
Tulsa, Okla.

Texas Pacific Coal
and Oil Co.
Fort Worth, Tex.

Trinity Gas Corp.
Dallas, Tex.

United Gas Pipe Line Co.
Shreveport, La.

Warren Petroleum Corp.
Tulsa, Okla.

Miscellaneous

LPG Digest
Los Angeles, Calif.

LP-Gas Magazine
New York, N.Y.

LP-Gas Wholesalers and Jobbers

Anchor Petroleum Co.
Tulsa, Okla.

Arrow Gas Corp.
Roswell, N. M.

Associated Gas Industries
Hagerstown, Md.

City Gas & Appl. Co.
Ely, Nev.

Consumers Cooperative
Assn.
Kansas City, Mo.

Cumberland Gasoline
Corp.
Lakewood, Ohio

Eason Oil Co.
Enid, Okla.

Ellis Transport Corp.
Houston, Tex.

Esso Standard Oil Co.
New York, N.Y.

Fuelane Corp.
Liberty, N.Y.

Household Gas &
Appliance Co.
Craig, Colo.

Humble Oil &
Refining Co.
Houston, Tex.

Phillips Petroleum Co.
Bartlesville, Okla.

Ready-Flame, Inc.
Kokomo, Ind.

Samson Co.
Clarksburg, W. Va.

Skelly Oil Co.
Kansas City, Mo.

Texas Natural
Gasoline Corp.
Tulsa, Okla.

Town & Country Gas Co.
Sioux Falls, S. D.

Tuloma Gas Products Co.
Tulsa, Okla.

United Petroleum Gas Co.
Minneapolis, Minn.

Warren Petroleum Corp.
Tulsa, Okla.

LP-Gas Bulk Plant Operators

Ackerman Butane Gas Co.
Ackerman, Miss.

Adams-Riley Gas Co.
Sedalia, Mo.

Airlene Gas Co. of Fulton
Fulton, Ky.

Albo Gas Cat
Mobile, Ala.

Allied Gas, Inc.
St. Louis Park, Minn.

Alton Bottled-Gas Co.
Alton, Ill.

Ernest L. Aman Co.
Tampa, Fla.

Amate's Tri-State Gas Co.
Freeman Spur, Ill.

American Propane Corp.
Norwich, Conn.

Andrews Oil Co.
Green Bay, Wis.

Appleton Appliance Co.
Appleton, Wis.

Appliance Sales & Service
Marshall, Ill.

Arapahoe Gas Co.
Boulder, Colo.

Arkansas Liquefied
Gas Co.
Booneville, Ark.

Arundel Gas Co.
Edgewater, Md.

Associated Propane
Gas Corp.
St. Louis, Mo.

Atlantic States Gas Co.
of New York
Cortland, N.Y.

Atlantic States Gas Co.
of Pennsylvania
Lancaster, Pa.

Austin Hydro Gas Co., Inc.
Austin, Tex.

Automatic Gas Co.
of Columbus, Inc.
Columbus, Ga.

H. E. Babcock
Battle Creek, Mich.

Bahamas Gas & Fuel
Co., Ltd.
Nassau, Bahamas

Barnett and Markle
Gas & Appl.
New Hampton, Ia.

Basin Petroleum, Inc.
Durango, Colo.

Bayard Propane Gas &
Equipment Co.
Bayard, Nebr.

Bay Heat, Inc.
North Bend, Ore.

Bayless LP-Gas Service
Damascus, Ohio

Beaufort Butane Gas Co.
Beaufort, S. C.

F. G. Bedell Co.
Jacksonville, Fla.

Bellefontaine Bottled Gas
Service
Bellefontaine, Ohio

Bell Liquefied Gas, Inc.
Corinth, Miss.

Bettergas Co.
Prophetstown, Ill.

Bi-County Fuel Co.
Wauchula, Fla.

Black & Thomas
Eminence, Ky.

Blue Flame Bottled Gas
Service
Fort Wayne, Ind.

Blue Flame Gas Co.
Dalton, Ga.

Blue Flame Gas Co.
Kenly, N. C.

Blue Flame Gas Co.
Mt. Pleasant, Ia.

Blue Flame Gas Co.
Olney, Ill.

Blue Flame Gas, Inc.
Bluffton, Ind.

Blue-Flame Propane Corp.
Caldwell, Idaho

Blytheville Propane Co.
Blytheville, Ark.

Dan Boone Gas &
Appliance Co.
Newnan, Ga.

Borck's Bottled Gas
Service
Columbus, Wis.

Bottled Gas Co. of
Lynchburg, Inc.
Lynchburg, Va.

Bottled Gas Corp.
of Virginia
Brandy, Va.

Bottled Gas Corp. of
Virginia
Charlottesville, Va.

Bottled Gas Corp. of
Virginia
Colonial Heights, Va.

Bottled Gas Corp. of
Virginia
Fredericksburg, Va.

Bottled Gas Corp. of
Virginia
Richmond, Va.

Branford Gas &
Electric Co.
Branford, Fla.

Bruns, Inc.
Sigourney, Ia.

Brunswick Ice & Coal Co.
Lawrenceville, Va.

Burnett Butane &
Hardware Co.
Clinton, Ark.

Burtay Gas Co.
Appleton City, Mo.

Butane and Propane
Service
Waurika, Okla.

Butane Gas of Mississippi
& Alabama
Tupelo, Miss.

Butane-Propane Gas Co.
of Tennessee
Chattanooga, Tenn.

Buxmont Gas Co.
Kulpsville, Pa.

Carden-McReynolds
Gas Co.
Springfield, Tenn.

Carlisle Propane Co.
Carlisle, Pa.

Cy Carney Appliance Co.
Fayetteville, Ark.

Carolina Butane Gas Co.
Columbia, S. C.

Carolinas Domestic
Gas Co.
Laurinburg, N. C.

Carolina Suburban
Gas Co.
Laurens, S. C.

Central Bottled Gas Co.
Salem, Ill.

Central Gas & Plumbing
Co.
Asheboro, N. C.

Central Georgia Gas &
Appliance Co.
Milledgeville, Ga.

Central Georgia Gas Co.
Statesboro, Ga.

Central L. P. Gas Service
Lawrence, Kan.

H. T. Chapman, Inc.
Oneida, N.Y.

Chastain-Clark Dist. Co.
Thomasville, Ga.

Chenango Gas Co., Inc.
Afton, N.Y.

Chesapeake Propane
Gas Co.
Easton, Md.

City Gas & Appliance Co.
Ely, Nev.

City Gas Co.
Antigo, Wis.

City Gas Service
Wisconsin Rapids, Wis.

Clement Gas &
Appliances
Miami, Fla.

Coffee Gas & Appliance
Co.
Douglas, Ga.

Coleman Gas Service Co.
Hartford, Mich.

Coleman Gas Service
Washingtonville, N.Y.

Collier Gas & Appliances
Whiteville, N. C.

Columbus Silgas, Inc.
Columbus, Ind.

Conservative Gas Corp.
New Hyde Park, L. I., N.Y.

Cook Gas, Plumbing &
Heating Supply Co.
St. Joseph, Mo.

Country Gas Service
Danvers, Mass.

Cummings Gas &
Equipment Co.
Montrose, Colo.

Currie Coal Co.
Fayetteville, N. C.

Cutten Gas Co.
Wyoming, Pa.

Cylindro Gas Co.
Quincy, Ill.

HONOR ROLL—NATIONAL LP-GAS PROMOTIONAL PROGRAM

Dairyland Gas and Fuel Corp.
Markesan, Wis.

Darlingas Co.
Pratt, Kan.

Dauphinee Distributors Associates
Hyannis, Mass.

Davidson Gas & Electric Co.
Osage, Ia.

Davis-Hurley Gas & Appliance Co.
Minco, Okla.

Dead River L. P. Gas Co.
Houlton, Me.

Denver Propane Co.
Denver, Colo.

De Soto Gas Co.
Arcadia, Fla.

Detrem Gas Co.
Polo, Ill.

Dickey Appliance Co.
Medicine Lodge, Kan.

Dixie Bottled Gas Corp.
Staunton, Va.

Dodd Gas & Appliance Co.
Oshkosh, Wis.

Domestic Propane Co.
Delta, Colo.

Geo. W. Dorsey Co.
Prince Frederick, Md.

Dri-Gas Co.
Miami, Fla.

Dri-Gas Co.
Chicago, Ill.

Druid Butane Gas Co.
Tuscaloosa, Ala.

Dualane Gas Co.
Columbia, S. C.

Dupane Gas, Inc.
Duluth, Minn.

Eagle Valley Propane Gas Service
Eagle, Colo.

East Carolina Green's Fuel Gas, Inc.
Belhaven, N. C.

Eastern Propane Co.
Malvern, Pa.

Economy Gas Co.
Geneva, Ala.

Economy Gas Co.
Litchfield, Minn.

Palmer E. Edwards Co.
Spooner, Wis.

Ewing-McCoy Gas Co.
Tupelo, Miss.

Farm & Home LP-Gas
Ripley, Tenn.

Farmers Co-op Oil & Supply Co.
Dighton, Kan.

Farmers Fuel Gas, Inc.
Cynthiana, Ky.

Feather River Gas Co.
Quincy, Calif.

Five Star Gas Co., Inc.
Denmark, Wis.

Flamegas Detroit Corp.
Detroit, Mich.

Flamegas Wisconsin Corp.
Milwaukee, Wis.

Fort Madison Gas Co.
Fort Madison, Ia.

Fram Heating, Inc.
Chagrin Falls, Ohio

Franck Propane
Audubon, Ia.

Franger Gas Co.
Elkhart, Ind.

Freeman Gas & Electric Co.
Spartanburg, S. C.

French Butane Gas Co.
Malvern, Ark.

Fuelane Corp.
Liberty, N.Y.

Fuelgas Co., Inc.
Flint, Mich.

Fulton Radio Sales
Hancock, Md.

Gale Gas Co.
Keyport, N. J.

Gas & Appliance Distributors, Inc.
Charlotte, N. C.

Gas Appliance Co.
Lake Charles, La.

Gaservice Co.
Clarinda, Ia.

Gas Service, Inc.
Bluefield, W. Va.

Gas Supply & Appliance Co.
La Junta, Colo.

Gem Automatic Gas Co.
Granite Quarry, N. C.

General Bottle Gas, Inc.
Loogootee, Ind.

General Natural Gas Corp.
Monticello, N.Y.

Georgia Propane Gas
Augusta, Ga.

Glover Bottled Gas Service
Patchogue, N.Y.

Goodman Bottled Gas Co.
Gladstone, Mich.

Gorham's Gas Service
Mora, Minn.

Kenneth L. Gove
Amesbury, Mass.

Grass-O-Gas, Inc.
St. Louis, Mo.

Gray's
Johnstown, Colo.

Green's Fuel of Florida Corp.
Sarasota, Fla.

Green's Fuel Co. of Georgia, Inc.
Lawrenceville, Ga.

Green's Fuel Co. of North Carolina, Inc.
Graham, N. C.

Green's Fuel of De Land
De Land, Fla.

Green's Fuel of Florida, Inc.
Bartow, Fla.

Green's Fuel of Florida
Lakeland, Fla.

Green's Fuel of Florida
Lake Wales, Fla.

Green's Fuel of Florida
Plant City, Fla.

Green's Fuel of Gainesville
Gainesville, Fla.

Green's Fuel of South Carolina
Myrtle Beach, S. C.

Green's Fuel of York County
Rock Hill, S. C.

Elsmer A. Guse Co.
Mayville, Wis.

H. S. T. Gas Co.
Washington, Mo.

Hamilton Produce Co.
Bloomfield, Ia.

Harbor Gas, Inc.
Two Harbors, Minn.

Hardware Charlie Gas Co.
Paintsville, Ky.

Harlan Bros.
Fallston, Md.

Harms All-Gas Co.
Allison, Ia.

Harris Beltane Gas Co.
Anderson, S. C.

F. A. Harrison Gas Service
Bradenton, Fla.

Helena Propane
Helena, Mont.

Herington Gas & Appliance Co.
Herington, Kan.

Hetro Gas Co.
Cameron, Mo.

Hoffman & Cooper
Colonial Beach, Va.

Home Gas & Appliance Co.
Grand Junction, Colo.

Home Gas & Appliance Co.
Tucson, Ariz.

Home Gas & Appliance Corp.
Trenton, Mo.

Home Gas & Machinery Co.
Mobridge, S. D.

Home Gas Co.
Bells, Tenn.

Home Gas Co.
Chehalis, Wash.

Home Gas Co.
Moultrie, Ga.

Home Gas Co.
Olympic, Wash.

Home Gas Co.
Tacoma, Wash.

Home Gas Service
Kahoka, Mo.

Homestead Gas Co.
Homestead, Fla.

Hoosier Gas Distr. Co.
Linton, Ind.

House & Sims
Albany, Mo.

Household Gas & Appliance Co.
Craig, Colo.

Household Service, Inc.
Clinton, N.Y.

Hugo LP-Gas Co.
Hugo, Colo.

Hydro Gas Co. of W. Fla., Inc.
Pensacola, Fla.

Hydro Gas Service Co.
Bainbridge, Ga.

Hynson Electric & Supply Co.
Manassas, Va.

Idaho Propane Co.
Rigby, Idaho

Ideal Gas & Appliance
Nyssa, Ore.

Illinois Butane Gas & Equipment Co.
Bloomington, Ill.

Indiana Bottled Gas Co.
Peru, Ind.

Indianapolis Bottled Gas Co.
Indianapolis, Ind.

Indian River Gas Co.
Melbourne, Fla.

Interstate Gas Co.
Closter, N. J.

Inter-State Gas Co.
Lima, Ohio

Inverness Plumbing Co.
Inverness, Fla.

Iowa Metered Gas, Inc.
Cedar Rapids, Ia.

Irvington Gas Co.
Irvington, Ky.

Ithaca Propane Co.
Ithaca, N.Y.

Jeffersonville Silgas
Jeffersonville, Ind.

Jersey Shore Gas & Heating Co.
Jersey Shore, Pa.

Jones Suburban Gas Co.
Lima, Ohio

Junction City Dehydrating Co.
Junction City, Kan.

Kahl Appliance Co.
Freeport, Ill.

Kaw Valley Skelgas Service Co.
Topeka, Kan.

Kay Gas Co.
Blackwell, Okla.

Kay Gases Co.
Chicago, Ill.

Keen Compressed Gas Co.
Wilmington, Del.

Kelly Butane Co.
Bay City, Tex.

Kentucky L. P. Gas Co.
Winchester, Ky.

Millard Kiel
Highmore, S. D.

E. R. Kiper Gas Corp.
Monroe, La.

Kirby Petroleum Products, Inc.
Faribault, Minn.

Kool Kitchen Gas Co.
Oostburg, Wis.

L-P Gas & Appliance Co.
Glenwood Springs, Colo.

L-P Gas Co.
Blandinsville, Ill.

L. P. Gas Service
Flagler, Colo.

Lake Bottlegas Co.
Devils Lake, N. D.

Layland Butane Co.
Cleburne, Tex.

Lein L. P. Gas Co.
Janesville, Wis.

Liberty Gas & Service Co.
Elkhart, Ind.

Liquefied Gas Corp.
Boise, Idaho

Bob Litter Fuel & Heating Co.
Chillicothe, Ohio

Littleton Gas & Appliance Co.
Littleton, Colo.

Live Oak Gas Co.
Live Oak, Fla.

Magiflame, Inc.
Virginia, Minn.

Marvel Gas Co.
Frederic, Wis.

Mayflower Gas Corp.
Portland, Me.

Merrill Bottled Gas Service
Patchogue, N.Y.

Metergas, Inc.
Maitland, Fla.

Metrogas, Inc.
Chicago, Ill.

Michigan Bottled Gas Co.
Durand, Mich.

Mid-Hudson Bottled Gas, Inc.
Poughkeepsie, N.Y.

Mid-State Bottled Gas Co.
New Haven, Ky.

Midwest Bottle Gas Co.
La Crosse, Wis.

Midwestern Butane Gas Co.
Belleville, Ill.

Miller Ruralgas Service
Vandalia, Mo.

Minnesota Butane & Equipment Co.
Lewiston, Minn.

Missouri Western Gas Co.
Butler, Mo.

Mitchell L. P. Gas Co.
Fort Payne, Ala.

Modern Appliance Co.
Daytona Beach, Fla.

Modern Equipment, Inc.
Michigan City, Ind.

Modern Gas & Appliance Co.
Dayton, Ohio

Modern Gas Co.
Albany, Ga.

Modern Gas Co.
Cottage Hills, Ill.

Modern Gas Co.
Quitman, Ga.

Modern LP-Gas Service
Lansing, Kan.

Monier's Home Utilities
Chester, Vt.

Moody Brothers
Fort Myers, Fla.

Morgan County Gas Co.
Versailles, Mo.

Nansemond Gas Corp.
Suffolk, Va.

Natural Gas Co. of Florida
Ocala, Fla.

Natural L. P. Gas Corp.
Waukesha, Wis.

Nebraska Bottled Gas & Appliance Co.
Fremont, Nebr.

North Carolina Gas Corp.
Reidsville, N. C.

North Central Public Service Co.
Perry, Ia.

Northeast Georgia Green's Fuel Gas Co.
Elberton, Ga.

Northern Indiana Petroleum Gas
Fort Wayne, Ind.

North State Gas Service
Forest City, N. C.

Northwest Butane Gas Co.
Salmon, Idaho

Northwest Hydrogas Co.
New Brighton, Minn.

Northwest Liquefied Gas Co.
The Dalles, Ore.

Nu Gas Co.
Humboldt, Tenn.

Opdyke Gas & Appliance Co.
Zanesville, Ohio

Osage Oil Co.
Warsaw, Mo.

Pahl Service
Horicon, Wis.

Palm Bottled Gas
Negaunee, Mich.

Palmetto Butane Gas Co., Inc.
Greenville, S. C.

Parks Furniture Co.
Kissimmee, Fla.

Parkston Co-op Assn.
Parkston, S. D.

The Parlett Gas Co.
Waldorf, Md.

Pennant Fuel & Gas, Inc.
Gary, Ind.

Perfect Fuel Co.
Sayre, Okla.

Perkins Gas & Air Conditioning
Dublin, Ga.

Phillips Petroleum Co.
Bartlesville, Okla.

Pickett Butane & Propane Co.
Elk City, Okla.

Pilot Butane Gas Co.
Kingstree, S. C.

Pine Ridge Equipment Co.
Gordon, Nebr.

Hohman J. Poist Co.
Laurel, Md.

Pontotoc Butane Gas Co.
Pontotoc, Miss.

The Propane Co. of Gardiner
Gardiner, Mont.

Propane Gas and Appliance Co.
Cooperstown, N. D.

Propane Gas Co.
Davenport, Ia.

Pro-Pane Products, Inc.
Fort Wayne, Ind.

Public Gas Co.
Miami, Fla.

Pure Gas Service Co.
Worland, Wyo.

Pyrofax Gas Corp.
New York, N.Y.

Rapid Thermogas Co.
Des Moines, Ia.

Red Devil Butane Gas Co.
Franklin, Ky.

Red-D-Gas & Electric Co.
Eldon, Mo.

Red Dot LP-Gas Co.
Denver, Colo.

Redigas, Inc.
Elgin, Ill.

Reif Gas Co.
Carrollton, Ill.

Remsen Bottle Gas Co.
Remsen, Ia.

Renco Gas Co.
Olivia, Minn.

Reynolds Gas & Appliance Co.
Jasper, Ala.

Reynolds Gas Co.
Osgood, Ind.

Ridge Fuel Co.
Avon Park, Fla.

C. H. Roberson, Inc.
Freehold, N. J.

Rockford Propane Co.
Rockford, Ill.

Rockgas Service Co., Inc.
El Cajon, Calif.

Rosebud Propane Gas Co.
Burke, S. D.

HONOR ROLL—NATIONAL LP-GAS PROMOTIONAL PROGRAM

Rural Bottled Gas & Appliance Co.
West Paducah, Ky.
Ruralgas Co.
Nortonville, Kan.
Rural Gas Co.
Lyons, Ga.
Rural Gas Co.
Williamsport, Pa.
Rural Gas Service
Belleville, Kan.
Rural Gas Service
Mexico, Mo.
Rural Gas Service
Westfield, Mass.
Rural Gas Utilities of Nebraska
Hastings, Nebr.
S & R Gas Co.
Coushatta, La.
Sabin Propane Gas Co.
Enid, Okla.
R. B. Sahagen & Co.
Rochdale, Mass.
St. Paul Bottled Gas Co.
St. Paul, Minn.
St. Petersburg Gas Appliance Co.
St. Petersburg, Fla.
Sayers Gas Co.
Milan, Mo.
Seaboard Gas Co.
Charleston, S. C.
Semo Gas Co.
Malden, Mo.
Servagas Co.
Kent, Ohio
Service Gas & Electric Co.
Jesup, Ga.
E. A. Smith, Jr.
Wichita Falls, Tex.
Smith Gas Service
Rockford, Ill.
Smoky Mountain Gas Co., Inc.
Murphy, N. C.
Solar Gas Co.
Mahnomen, Minn.
Southeast Butane Co.
Lumber Bridge, N. C.
Southern Butane Propane Gas Co.
Columbia, Tenn.
Springfield Gas Light Co.
Springfield, Mass.
Standard Fuels & Appliances
Tulsa, Okla.
Steelgas Distributors
Great Falls, Mont.
Stratton Equity Corp.
Stratton, Colo.
Suburban Bottle Gas Co.
Wakeman, Ohio
Suburban Fuelite Gas Co., Inc.
Lexington, Mass.
Suburban Gas Co.
Brunswick, Ga.
Suburban Gas and Appliance Co.
Canton, Ohio
Suburban Gas Co.
Montgomery, Ala.
Suburban Gas Co.
St. Augustine, Fla.
Suburban Gas Service
South Hartford, N.Y.
Suburban Marine Gas Co.
Whippany, N. J.
Suburban Propane Gas Co.
Seattle, Wash.
Suburban Propane Gas Corp.
Whippany, N. J.
Suburban Propane Gas
Sumter, S. C.
Suburban Propane Nat-Gas Co. of N. J.
Hammonton, N. J.
Suburban Propane Nat-Gas Co. of Pa.
Whippany, N. J.
Suburban Propane Ohio Co.
Barnesville, Ohio
Suburban Rulane Gas Co. of North Carolina, Inc.
Charlotte, N. C.
Suburban Rulane Gas Co. of South Carolina
Greenville, S. C.
Suburban Rulane Gas Co. of Tennessee
Kingsport, Tenn.
Suburban Rulane Gas Co. of Virginia
Portsmouth, Va.
Suburban-U. D. I. Co. of Maine
Portland, Me.
Suburban-U. D. I. Co. of New Hampshire
Littleton, N. H.
Suburban-U. D. I. Co. of Rhode Island
Ashton, R. I.
Suburban-U. D. I. Co. of Vermont
Brattleboro, Vt.
Suntane Bottled Gas Co.
Marion, Ind.
Supreme Propane Gas Co.
Ninety Six, Ga.
Suregas Service
Perry, Fla.
Tank Gas Corp.
Schenectady, N.Y.
Tennessee Liquefied Gas Co.
Brownsville, Tenn.
Tennessee Liquefied Gas Co.
Covington, Tenn.
Tennessee Liquefied Gas Co.
Dyersburg, Tenn.
Tennessee Liquefied Gas Co.
Lucy, Tenn.
Tennessee Liquefied Gas Co.
Memphis, Tenn.
Texas Bottled Gas Corp.
St. Louis, Mo.
Thompson's Bottled Gas & Appliances
Belleville, Ill.
Tipton Gas Co.
Sylvester, Ga.
Town & Country Gas Service
Taneytown, Md.
C. Trau Gas Volatil Butane
Republic Honduras, C. A.
Tri-County Gas & Appliance Co.
Tifton, Ga.
Tri-County Refrig. Co.
Manhattan, Kan.
Tri-Gas Distr. Co.
Traverse City, Mich.
Tugalo Gas Co.
Toccoa, Ga.
Turner County Gas Co.
Ashburn, Ga.
Union Gas & Equipment Corp.
Pueblo, Colo.
United Cities Utilities Co. and Subsidiaries
Chicago, Ill.
The United Gas Co.
Colorado Springs, Colo.
U. S. Natural Gas Co.
Ledgewood, N. J.
Uregas Service, Inc.
Moberly, Mo.
The Val-Gas Co.
Fort Valley, Ga.
Valley Gas & Appl. Co.
Toppenish, Wash.
Valley Gas Co.
West Point, Ga.
Valley Propane Co.
Puyallup, Wash.
Van Bottle Gas Co.
Newburgh, Ind.
Vapyre Propane Co.
Brewster, N.Y.
The Verkamp Corp.
Cincinnati, Ohio
Wallace Gas Co.
Wallace, N. C.
Watseka Bottle Gas, Inc.
Watseka, Ill.
Webb Gas & Appliance Co.
Warsaw, Ky.
Weilbacher's & Sons
Columbia, Ill.
Wells L. P. Gas Service
Central City, Ky.
Western Iowa Gas Co.
Atlantic, Ia.
Western States Gas Co.
McPherson, Kan.
Whitworth Butane Gas Co.
Oxford, Miss.
Wilhoit Gas Co., Inc.
Warrenton, Ga.
Wilson Gas Service
Mason City, Ill.
Winner Gas & Electric Co.
Winner, S. D.
Wisconsin Bottle Gas Co.
Medford, Wis.
Wisconsin L-P Gas Co.
Wausau, Wis.
Wisconsin Rapids Gas & Electric Co.
Wisconsin Rapids, Wis.
Wisconsin Southern Gas & Appliance Corp.
Lake Geneva, Wis.
Wissing's Metered Gas, Inc.
Salina, Kan.
Wixson Bros. Equipment Co.
Fisher, Ark.
Worrall Propane Corp.
Lafayette, Ind.
Wulf Propane Service
Sturgeon Bay, Wis.
Wytheville Bottled Gas Co.
Wytheville, Va.
Yankton Homegas Co.
Yankton, S. D.
Yongue Butane Sales
Anthony, Fla.
Young's Bottle Gas & Appliances
Knoxville, Ia.

Retail Dealers

Adams Gas Co.
Janesville, Wis.
Azalea Bottled Gas Co.
Palatka, Fla.
Bathurst Gas & Electric Co.
Lock Haven, Pa.
Fred W. Beal, Inc.
Ellsworth, Me.
Blue Tip Gas Co.
Berkshire, N.Y.
Bradford Hardware
Bradford, Ill.
Callanan Bros.
Keeseville, N.Y.
Camps Bottled Gas Co.
Warren, Ohio
Cawley Coal Co.
Lowell, Mass.
City Ice & Fuel Co.
Council Bluffs, Ia.
Community Bottled Gas Co.
Milford, Mass.
Community Gas Co.
Derry, N. H.
Consumers Gas Corp.
Portland, Me.
Couture Bros., Inc.
Turners Falls, Mass.
Creglow's
Clinton, Ia.
Crooks Bottled Gas Service
Warren, Ohio
Dalrymple Oil Co.
Lawrence, Mass.
Dixie Gas Corp.
Coral Gables, Fla.
Dobberpuhl Electric
Grafton, Wis.
Ever Ready Gas Co.
Columbiana, Ohio
Fayetteville Rulane Gas Corp.
Fayetteville, N. C.
Fulton Gas Co.
Oconto, Wis.
Gibson Bottled Gas Co.
Reedsville, W. Va.
Holly's Sales
Logansport, Ind.
Home & Ranch Supply
Monee, Ill.
Iola Plumbing & Heating Co.
Iola, Wis.
Jennett Plumbing & Heating Co.
Northfield, Vt.
Johnson Appliances
Cincinnati, Ohio
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Washington, Mo.
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Wabash, Ind.
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Philip Mueller Blue Flame Gas Service
Wilmington, Vt.
Orvel B. Peirce Co.
Peterborough, N. H.
Phillips Gas Co., Inc.
Barnwell, S. C.
Plumer E. Pope & Son
East Weymouth, Mass.
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Royalton, Ill.
Runge Gas Service
Franksville, Wis.
Rural Gas & Sales
House Springs, Mo.
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Bird Island, Minn.
W. H. Snow & Son
Orleans, Mass.
Spe-D-Gas Co.
Hudsonville, Mich.
Unger & Stapleton
New Castle, Ind.
Universal Bottled Gas Corp.
Bradford, Pa.
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F. W. Wise Co.
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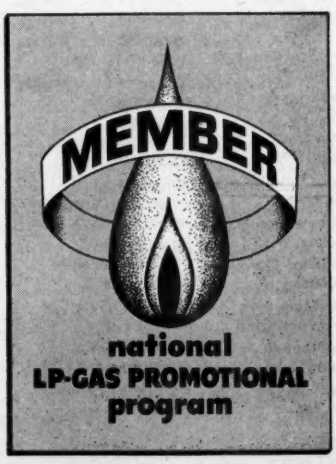
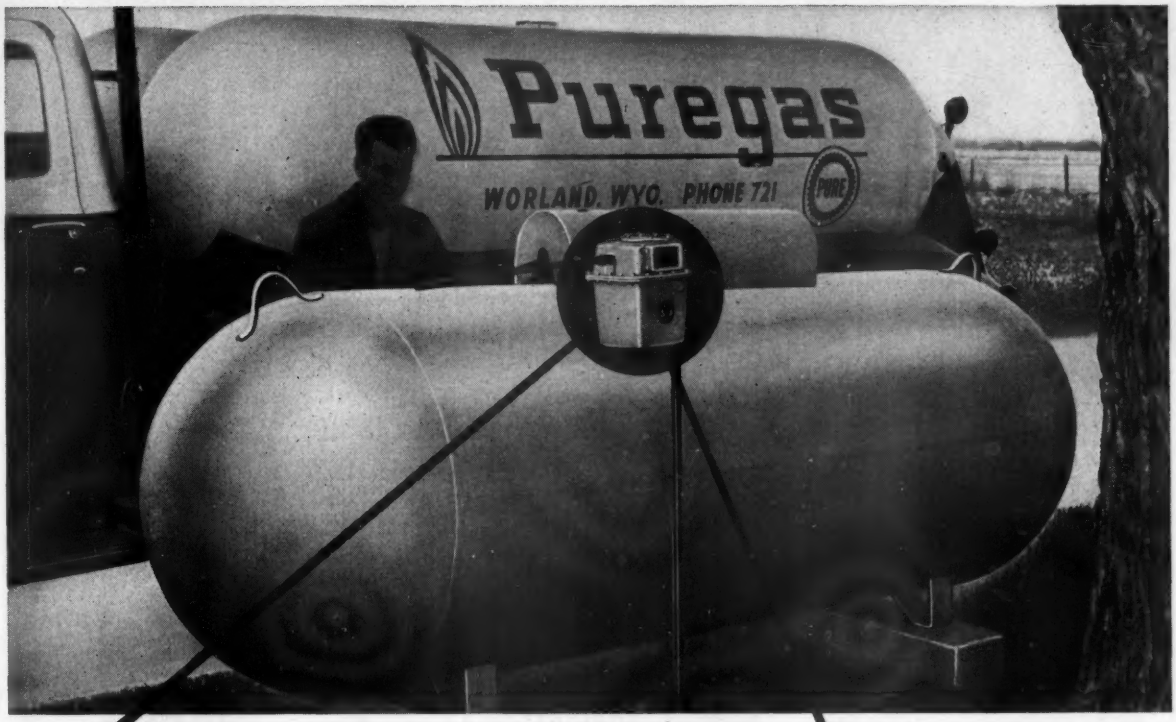
This flame emblem of the National LP-GAS Promotional Program is the official merit badge of the industry. Wherever it is displayed, it means that the manufacturer, producer or marketer is helping his own sales by cooperating to the fullest extent to keep LP-GAS the fastest-growing fuel industry in America.

Write for a membership form today!

National Council for LP-Gas Promotion
185 N. Wabash Ave., Chicago 1, Illinois





"Metered service pays off in the Big Horn Basin"

SAYS TALMAGE LOVELADY, President, Pure Gas Service Company

Puregas
WORLAND

"Simplifies storage, deliveries and ordering from suppliers"

After 9 years of residential and commercial metered service, Pure Gas Service Company of Worland, Wyoming, reports these advantages:

Simplification of storage problems through use of customer on-premises storage.

Simplification of deliveries through establishment of a regular delivery pattern based on actual demand shown by meters.

Balanced withdrawals from suppliers to meet known needs.

Ability to build a hard-hitting sales program built around the "pay only for what you use" theme.

American® meters used by Pure Gas Service Company are the straight-reading "speedometer" type, enabling the Company to carry on a unique self-billing program in which users read their own meters and make out their own statements monthly. Elimination of much paper work and costly billing procedures has resulted.

Advantages like these have accrued to LP-Gas Companies virtually everywhere when they adopt metered service. Write today for full details on how metered "city-type" LP-Gas service can help you.

"DO IT YOURSELF" billing has proved highly advantageous to the Pure Gas Service Company. Shown here is the monthly self-billing invoice book supplied to customers. Payment before the 10th of the month earns a sliding scale discount depending on the number of units registered by the American® 2B/50 Aluminumcase Meter.

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METER COMPANY
INCORPORATED (ESTABLISHED 1836)

AMERICAN METER CO EST. 1836

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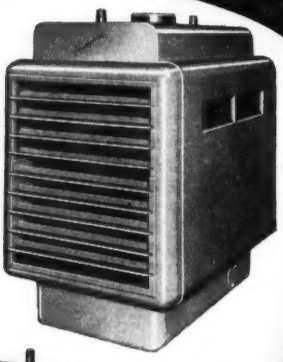
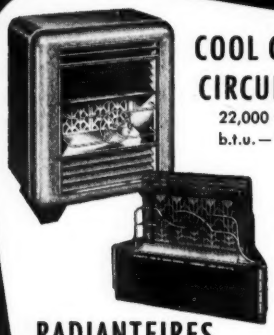
THIS FAMOUS *Humphrey* LINE WINS FRIENDS AND MAKES PROFITS FOR GAS-HEATING DEALERS



Model A
GAS UNIT HEATER
65,000 to 250,000 b.t.u.

Model 40-G
COMPACT UNIT HEATER
40,000 b.t.u. input



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Wide range of models in both vented and unvented styles.

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VENTED, RECESSED WALL HEATERS
Choice 3 Decorator Colors

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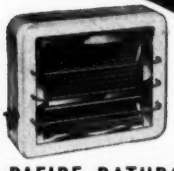
RADIANTFIRE CIRCULATORS
5 Sizes, 20,000 to 60,000 b.t.u.
2 Finishes

OPALITE GAS LAMPS



RAFIRE BATHROOM HEATERS

GENERAL GAS LIGHT CO.

Kalamazoo, Michigan

Don't let her get away...

...until she's seen your Norman Sketchbook!

"Sure, it's a swell idea . . . this Norman Sketchbook. Who ever heard of a better way to demonstrate the amazing versatility of the Norman Southerner to builders and new home heating prospects".

Many Norman heating dealers have already been asked for permanent file copies of the Norman Sketchbook by builders and architects. But catching up with new home heating prospects is another thing. As far as we know, they just don't walk into your showroom and ask for a demonstration of the Norman Sketchbook.

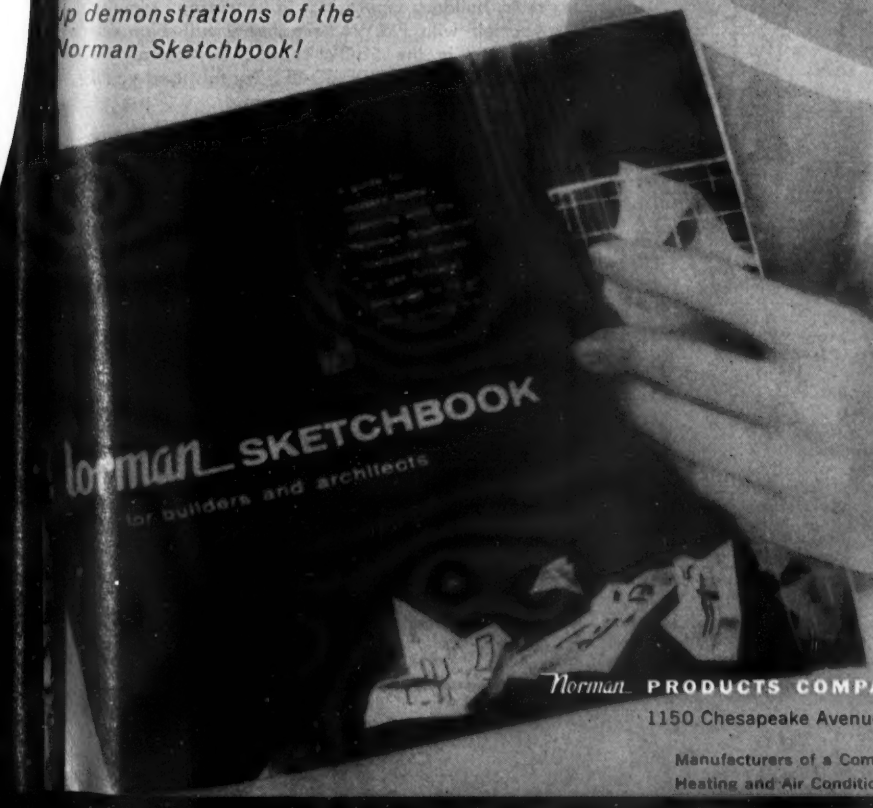
That is, unless you've already established yourself as the Norman heating dealer in the area through your own local advertising program. Cooperative advertising, for example, that's supplied to you in the big, new Norman advertising promotion package, lets your heating prospects know all about the many advantages of home heating with the Norman Southerner!

All the material in this handy Norman promotion package is supplied for you, free of charge, by your Norman distributor. In addition to a complete line of newspaper advertising mats, you'll find illustrated literature and sales folders for use in your own regular mailings.

It costs nothing, so be sure to get your local Norman advertising promotion package today. Write or call!

If she insists on doing off with your Norman Sketchbook, let her have it! But don't give in without a struggle. Then write or call us, and we'll ask your Norman distributor to send you another copy without charge!

Norman heating dealers uncover prospects through Norman co-operative advertising; use local promotion to set up demonstrations of the Norman Sketchbook!



The Norman Southerner
Horizontal Forced-Air Gas Furnace

NEW LOCAL ADVERTISING PACKAGE

Another big promotion for Norman heating dealers! A complete package of advertising and sales promotion material... including local newspaper advertising mats. Send for your free copy today!

Norman **PRODUCTS COMPANY**

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Manufacturers of a Complete line of Gas Heating and Air Conditioning Equipment

Bring her *your way*

with PREWAY LP-Gas Appliances

A PREWAY Bilt-In Range
means a built-in gas customer for you

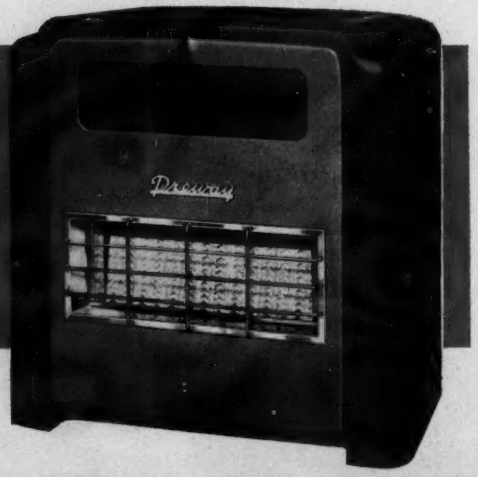
The built-in oven and cooking top idea is sweeping the country — in new construction and for remodeled kitchens. It means less work and greater convenience for the housewife — and for you, with PREWAY, it means the sales opportunity of a lifetime . . . for you can sell the world's most beautiful Bilt-In to the housewife at less cost than a comparable gas range — way underprice any free-standing electric range or electric built-in.

Cash-in on the profit side of this situation and build for a positive future. PREWAY Wallchef and Counterchef units — with all the automatic features women want — are available in an array of finishes to meet any kitchen planner's color scheme. Make yourself known as the Modern-Kitchen-Man. Send mailing pieces to prospects. Call on architects, builders, contractors in your area. Identify yourself with PREWAY's national full-color advertising in the SHOW-HOUSE Section of the POST, LIVING, BRIDE-TO-BE. Try this, and you'll discover dynamic new sales power.

Now, now is the hour to phone, wire or write to become a PREWAY dealer . . . for there is a feature role waiting for YOU.

Patents Pending

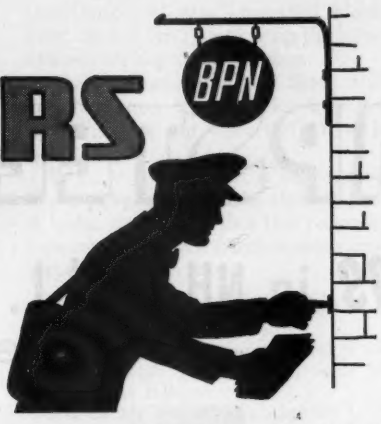
Beautiful to look at, easy on the budget, economical to use—PREWAY LP-Gas heaters offer you a lot for mighty little. They have the smallest of all cabinets, but the highest BTU input. They provide many automatic features, plus a lifetime burner guarantee and a 20-year warranty on the heater unit. They feature a "wrap-it-up, I'll-take-it price tag." What more reason do you want for being a PREWAY dealer? Phone, wire or write today for the profitable PREWAY proposition.



PREWAY Inc.

5755 Third Street, North
Wisconsin Rapids, Wisconsin

LETTERS



Underground Tanks

British Columbia

Freight truck lines in our city operate from central office and warehouse facilities. They presently refuel with gasoline at this point, also. We have interested some of the operators in the usage of propane for motor fuel.

The yard area is such as to make it impractical to locate an aboveground tank there and at the same time maintain the required 50-ft clearance from buildings.

Since we have not previously installed underground tanks, we would appreciate any information you can give us concerning such installations. Since we would be withdrawing liquid, will we have difficulty in obtaining a full liquid flow to the pump, or should we try to use a compressor to transfer fuel? If we used a compressor, could we use a liquid meter to measure fuel transfer to individual trucks?

Can you suggest a suitable piping layout, assuming the point of refueling to be up to 50 ft from the underground tank?

Would the buried tank also be required to be 50 ft from buildings?

H.F.C.

Underground L. P. gas storage always presents problems, especially when it is necessary to pump liquid fuel from the storage tank.

The storage tank should be well protected with a heavy coating of asphaltic products to prevent corrosion. Many codes require that a 1/16-in. extra thickness of shell be provided for corrosion allowance. Also when backfilling it is wise, and some authorities require it, to place at least 6 in. of clean washed sand next to the tank to protect the coating from damage.

A compressor can be used for transferring the fuel, but will not permit good metering. Adequate additional pressure must be built up in the liquid to insure against the liquid "flashing" or bubbles forming which will cause the meter to read high.

If a pump is used then some method of flooding the pump inlet with liquid is required or the pump will draw partly vapor and will become vapor locked or will wear badly if it is a gear pump. On page 120 of the **Handbook Butane-Propane Gases** there is illustrated (Fig. 5) and described a method of educting liquid from an underground tank to a pump suction tank above the pump inlet. The pump should have a capacity enough larger than the meter capacity to insure an adequate circulation through the eductor. The pump should be as close to the tank outlet as possible, although the meter may be 50 ft or more from the pump.

Sometimes pumps have been placed in a pit near the bottom of the tank, but this has never been considered good practice because of the accumulation of vapors which always occurs in such a pit.

The requirements of state, provincial or other local codes vary regarding the allowable distance from buildings, property lines, etc., for both aboveground and underground tanks. You should check the codes applicable to your locality. The NFPA standards of Pamphlet No. 58 require the same clearance for underground tanks as for aboveground tanks. These standards require only 25-ft clearance for tanks from 500-gal. up to 2000-gal. capacity.—Ed.

•

Sulphur Analysis

Tennessee

We will very much appreciate your providing us with the information and method necessary to set up a practical, simplified field test for determining the sulphur content and moisture content of commercial propane, within the limits of the standard specifications for commercial propane.

D.W.S.

A simplified, yet reasonably accurate field test for sulfur and moisture content in commercial propane is a pretty large order. No quantitative sulfur analysis has ever been considered simple even in laboratory work.

There have been some simple tests developed to determine the amount of certain kinds of odorants in L.P. gas. See pages 73 through 76 of the handbook **Butane-Propane Gases** for a discussion and references to sulfur determination methods.

Water appears in L.P. gas both as absorbed or soluble water in the liquid and vapor, and as free water, which is separate from the liquid or vapor, and found in the bottom of the storage tank or transport vessel. See pages 322 and 323 (regulator freeze-ups) of the Handbook for a discussion and tables regarding this impurity. It is quite apparent that water content will be difficult to determine where it exceeds the quantity soluble in L.P. gas.

The Natural Gasoline Association of America, 422 Kennedy Bldg., Tulsa 3, may be able to supply you with additional information on approved test methods and equipment.—Ed.

•

Carbon Monoxide

Ontario

We are investigating an accident involving the faulty installation of a propane heater. The heater was installed without a flue and carbon monoxide was apparently created by faulty combustion due to lack of oxygen.

We are wondering if you could shed any light on such a problem, especially with respect to general safety precautions in the installation of propane burning heaters.

C.Z.

The use of an unvented heater, using any type of fuel, can cause the same results as you have experienced unless some provision is made to insure adequate ventilation.

An unvented heater in a tightly closed room will gradually consume the oxygen in the air. As the normal supply of oxygen is depleted, insufficient oxygen reaches the burner to completely consume the fuel and carbon monoxide will become a product of combustion. Such results can occur in any tightly closed space with an unvented heater whether the fuel be gas, oil, wood or coal.

Safety shutoff pilots may be used to turn off the gas supply, but by the time the oxygen supply has been depleted to the extent that the air will not support combustion the damage to animal or human life has been done. The only answer is the use of vented heaters, or proper education of the people using the unvented heater so they will provide some ventilation such as an open window.

We believe it is normal practice in your section of the country to close a house rather tight during the winter months. Storm doors and windows, "banking" the house and otherwise closing it tightly against the infiltration of air are regular practice. This can even create a problem with vented heaters unless some consideration is given to providing an adequate source of fresh air to the combustion

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New Designs in NH_3 and L.P.G. Bulk STORAGE TANKS

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EASIER HANDLING
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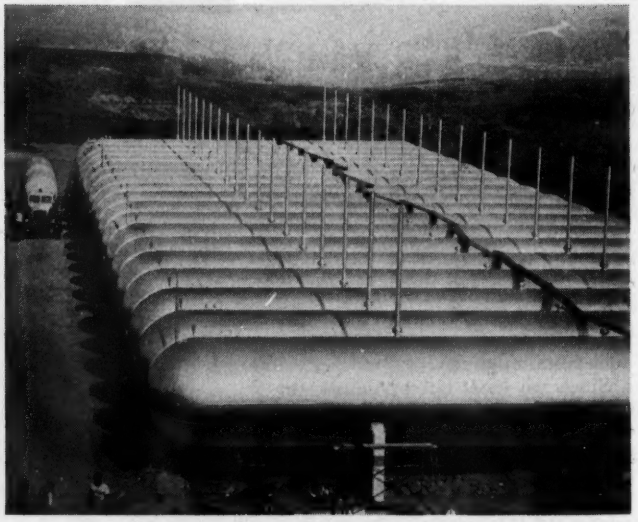
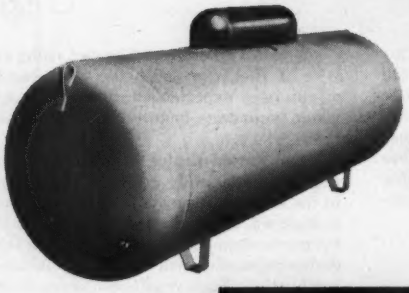


LARGE BULK STORAGE TANKS—Manufactured to meet every need for safe, economical operation. Capacities to 30,000 gallons.

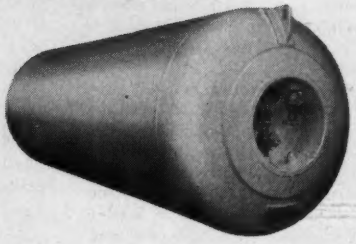
AMPSTEEL PRODUCES:



SMALLER STORAGE TANKS—A complete line of L.P.G. tanks. Both top and end-connected models available.

ALL TYPES OF NH_3 TANKS

From large transport units to small applicator and transfer tanks, all meeting most rigid safety regulations. All have new AMPSTEEL designs for greater safety, efficiency and capacity. A typical example of this is the new recessed-head type (shown at right) developed for Fannin Gas Company. Stress-relieved and X-rayed for less weight. Designed for faster and easier handling at the plant and at the point of use.



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Liquefied Gas Division

AMERICAN PIPE & STEEL CORPORATION

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chamber and the draft hood. Recommended practice calls for 1 sq in. of air inlet vent for every 1000 Btu of rated heating capacity. That is, a 20,000 Btu heater should be provided with a minimum of 20 sq in. of air inlet vent area to supply the air that will be required for combustion. The same principle applies to heaters using any other type of fuel.

Many of our states have regulations that require rooms such as those in hotels or auto courts to use vented heaters, because many people traveling do not understand the dangers that may develop from the use of unvented gas or oil heaters.—Ed.

•

Engine Parts

North Dakota

We noted in your January issue that you had advised a writer to contact Jahns Quality Piston Inc., for engine compression-raising information.

Our company has a carburetion department. Frequently, our dealers question us on the requirements and limits involved in high-compressioning for L.P. gas carburetion.

We would appreciate the names and addresses of such companies that would make this information available to us.

J.R.B.

Jahns and other manufacturers of special and replacement pistons can supply you with lists of pistons which they have available, in some cases including recommended pistons for LPG conversion.

The **Butane-Propane Power Manual**, which we publish, includes listings of special high-compression equipment available from the truck and tractor manufacturers; also, a complete discussion of the various recommendations for modification of existing parts—heads, manifolds, etc.

You should also have on hand the current catalog sheets and price lists of manufacturers of replacement manifolds for trucks and tractors. We would suggest that you get these from Ellis Manifold Co., 2212-A E. Washington Blvd., Los Angeles 21, Calif., and from Johnson Machine Shop, 914 E. Howard St., Pontiac, Ill.—Ed.

•

Mysterious Powder

Minnesota

We have, at times, had a lot of trouble with a fine black powder. It also becomes a bit flakey and plugs up the pilot orifices. We have one installation, a new one with black pipe, that keeps plugging up the pilot orifices on the room heaters.

Also we note that the filter and regulators on the trucks burning propane plug up with this black powder.

What is it and what is its source? We use pipe dope on the threads and it looks very much like this powder; however, we have tried to keep any dope out of the lines.

H.P.G.

There are several possible sources of the material which you describe. Some of these are as follows:

1. Materials used in processing the L. P. gas during the refining process may not all be removed.
2. Steel scale from tanks, pipe, and fittings and dust or other compounds that may be left in tanks or piping.
3. Carbonaceous or other earthy materials that may come from the wells or be formed in the refining process may not be completely removed.
4. Sulfur in the fuel when it contacts copper tubing or other fittings will form copper-sulfur compounds.

Small filters in the gas lines immediately ahead of the pilot burner will help prevent the plugging trouble you are encountering.

Dusty materials that are carried in the liquid fuel will not, except in minute quantities, be carried over into vapor withdrawal systems. They are more likely to show up in the liquid withdrawal systems such as those on your trucks.

Your trouble in vapor withdrawal systems is more likely to stem from sources like those mentioned in the paragraphs above.—Ed.

•

Buried Tanks

Ohio

We have been asked by one of our customers to bury a 500-gal. standard propane aboveground tank. This bulk tank would be buried with just the top of the tank and controls showing. Would there be anything wrong in doing this?

When burying underground bulk tanks what type of coating generally works out best?

J.K.

The method of burying the tank as you have described it in your letter is not in accordance with the requirements of NBFU Pamphlet 58.

Reference is made to paragraph 2.6(d) of Pamphlet 58, and to paragraph 2.6(e) for coatings.

These two paragraphs read as follows:

"(d) Containers buried underground shall be so placed that the top of container is not less than 2 ft below the surface of the ground, except that where ground conditions make compliance with this requirement impracticable, installation shall be made otherwise to prevent mechanical injury. It will not be necessary to cover the portion of the container to which manhole and other connections are affixed. When necessary to prevent floating, containers shall be securely anchored or weighted.

"(e) Underground containers shall be set on a firm foundation (firm earth may be used) and surrounded with soft earth or sand well tamped in place. As a further means of resisting corrosion, the container prior to being placed underground, shall be given a protective coating satisfactory to the authority having jurisdiction. Such protective coating shall be equivalent to hot-dip galvanizing, or to two preliminary coatings of red lead followed by a heavy coating of coal tar or asphalt, and the container thus coated shall be so lowered into place as to prevent abrasion or other damage to the coating."

Also, you should check your state and local regulations. Some state and local ordinances are very specific in this matter. —Ed.

•

Carburetor Temperature

Oklahoma

I need to know the ideal temperature for carburetor intake air and fuel-air mixture in the intake manifold of engines converted to use L. P. gas.

Can you supply this information or give me the name of a source where I might obtain it?

H.B.H.

Theoretically, the ideal temperature for carburetor intake air and fuel mixture in the intake manifold would be just enough above 32° F to be sure that no icing would take place in the manifold or in the fuel vaporizer.

Practically, it is impossible to even come close to this operating temperature. It is generally considered better to stabilize the temperature of the air and of the fuel in relation to each other, controlling each to a temperature that is practical to maintain. As neither temperature of fuel or of air can be controlled within fine limits, we must plan to hold them within a temperature range, and adjust the carburetor mixture so it will not lean out too much throughout this range.

The practical compromise—which is only a compromise—is to control the temperature of the fuel vapor with the heat of the engine water, and the temperature of the incoming air by bringing it through the side of the hood during warm weather, and taking it direct from the engine compartment during cold weather. Neither of these arrangements is ideal.

It would be better to have both the fuel and the air at lower temperatures. The question is, how are you going to regulate that air to a lower temperature with outside atmospheric temperatures above 100°? The fuel temperature can be regulated to a lower temperature than is now customary by the use of thermostats on the regulator outlet, and it helps.—Ed.

There are some things you can always count on, such as the sun rising in the east, night following day, winter after fall — and dependable service from TULOMA LP-GAS.

From more than 30 sources of supply, with modern transportation facilities and experienced personnel, Tuloma offers quality products delivered "on time," all of the time.

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BPN

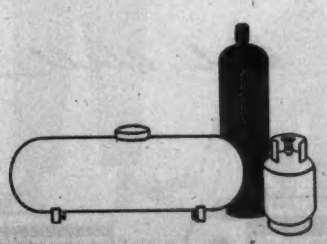
Beyond the Mains

COMFORT HEATING IS POTENTIALLY THE LARGEST DOMESTIC FUEL LOAD. The existing demand for clean, uniform, automatic and effortless heat -- the kind that can best be supplied by gas -- is tremendous, and it is growing every year. Figures which indicate the extent of the market are staggering.

Housing authorities tell us that 35 million existing homes are in need of remodeling and modernization. At least one fourth of these are in rural or suburban areas, beyond the gas mains. The majority of these outlying homes are prospects for some kind of L.P. gas heating equipment. In addition, it is expected that between 1 and 1.4 million new homes will be built each year until 1960, and that the trend will continue upward.

L.P. GAS CAN GET A LARGE SHARE OF THIS BUSINESS. It must be sold in competition with the oil heat industry -- a group of specialists which out numbers the heating specialists in our industry. And the fuel oil people are organized and working hard at their job. Particularly evident is their campaign to reach the new home market through the large-scale builders -- the 5% who build more than 50% of the new houses.

Architects and builders are the key to the majority of heating sales in new homes. Work with these people leads to multiple sales, where similar work in selling individual home owners generally results in the sale of only one installation per prospect. The architects and builders can be reached through their national publications and through the mailing lists of their national, state and local organizations. Work which has been done in this direction by the National Council for LP-Gas Promotion needs to be broadened and intensified, but it will never reach its full effectiveness without the personal follow-up of the local LPG dealers who are in a position to supply the fuel. The architect must know the characteristics and dimensions of the heating units and other appliances that might be used,



Continued . . . ⟶

and the builders and their salesmen need to know your prices, operating methods, and service facilities. This information should be on paper, in convenient form for filing and for use with prospective purchasers of homes.

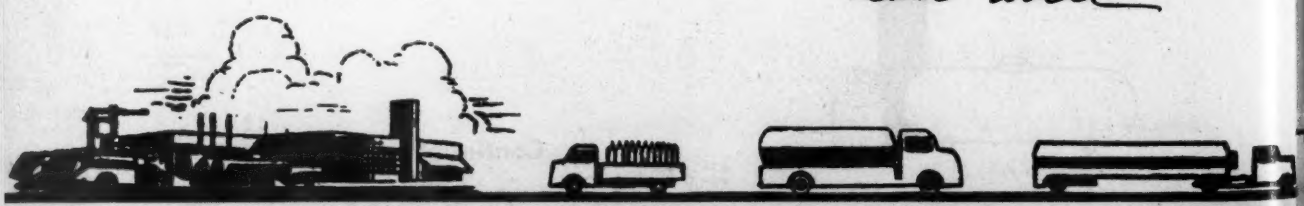
DOMESTIC HEATING MAKES SEASONAL LOAD PROBLEMS. The winter peak needs to be balanced by increased summer consumption from some other types of service. We have mentioned this fact before, and made specific recommendations for promoting various agricultural uses, including tractor carburetion, to establish this balance. Dealers in some regions where greatest winter heating load can be developed point out that they do not have the agriculture to permit balancing their winter loads by the sale of tractor fuel. We agree, but there are also regions where the tractor fuel load can far exceed the local winter heating load. There are dealers as far north as Minnesota whose agricultural fuel sales have given them an inverse ratio -- and the ability to contract for any winter heating load that may be available.

SUMMER AIR CONDITIONING CAN ALSO HELP. Ideally, each customer should operate on a uniform monthly load. That ideal can never be fully met, but year-round air conditioning of customers' homes can come close to that goal. And practical, economical summer air conditioning units operating on gas are making their appearance. Their widespread sale will help both the dealer and the producer to keep in seasonal balance.

SEASONAL BALANCE IS PRIMARILY A PRODUCER PROBLEM, but it cannot be solved by the producers. The solution is in the hands of the dealers. Until the load is brought close to seasonal balance the lack of balance will constitute a limitation on the growth of the industry. If we sell winter fuel, we must also sell summer fuel. And if we create the demand for more winter fuel than can be made with the present production facilities, no producer can justify expansion at the present cost of construction unless the new facilities can be kept in operation the year around.

THERE IS NO LIMIT TO THE GROWTH OF OUR INDUSTRY IN THE FORESEEABLE FUTURE IF THE GROWTH IS KEPT IN SEASONAL BALANCE.

Earl Abell



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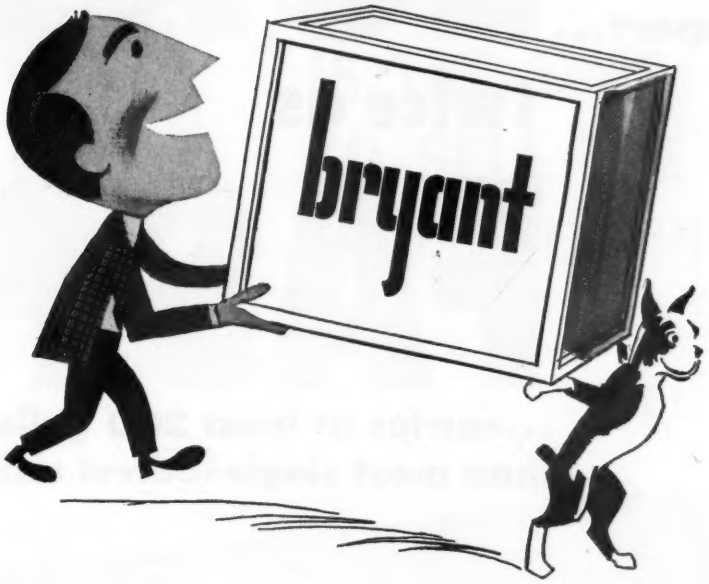

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BUTLER BIG-B LP G transport... LOADS twice as FAST

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This Butler BIG-B carries 8,340 gallons (W.C.) for Jones Suburban Gas Company, Lima, Ohio

Make an extra trip a day! Butler BIG-Barrel LP Gas transports knock 30 to 40 minutes off of "fill time." They get you on the road while other units are still waiting at the terminal. Wasted minutes turn into an extra trip a day, on many short terminal-to-bulk plant hauls.

Earn bonus revenue on every trip! Only the Butler BIG-B gives you the spectacular payloads of most modern single-barrel transports — *plus 200 bonus gallons.* You get this extra revenue-earning power because many massive, heavy parts are eliminated from the BIG-B.

Be sure you get BIG-B profit power! You pay the price of a BIG-B in unnecessary costs, when you operate any old-fashioned twin-barrel or uneconomical single-barrel unit. That's why it's just "sharp buying" to set the pace with a BIG-B and earn extra profits.

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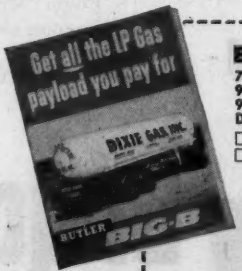

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NOW* IS THE TIME TO SELL THE HOUSEHEATING LOAD

BPN

*Yes, even in the middle of July

Despite the heat, the cold season will be creeping up on us before long. Mid-summer should mark the beginning of a dealer's strongest efforts to sell LPG for househeating. This special issue of Butane-Propane News has been molded to help him make the most of a big selling season.

Greatest Opportunities in History Await Dealers On Eve of the Househeating Selling Season

Riding on the wave of rising popularity, LPG occupies the best position to sweep the market before an old nemesis can move in to make its challenge.

By William W. Clark
Editorial Director

ONE of the paradoxes in selling, or in most any line of business endeavor, is that advance preparations must be made at most unlikely times. Spring fashions bloom while the snow is still falling; plans for the Easter trade are being made months in advance. Layouts for "back-to-school" ads are on the drawing boards at the same moment that millions of students are bursting out of classrooms, vacation-bound.

And that's why we say to those dealers who even now may be setting about in shirtsleeves, ties askew and brow dripping, as the thermometer threatens to climb out of sight—"Now is the time to sell LPG for househeating!"

Procrastination

It's human nature to procrastinate, and many's the home-owner who would rather put off the costly decision until his marrow begins to feel the need of warmth; but statistics prove that, with proper promotion and well-directed effort, the sales curve in househeating can show a healthy hump in mid-summer. Last year, according to the Gas Appliance Manufacturers Association, June was the best month of the year to that time, with 57,300 furnaces shipped; July slipped somewhat to 53,100—but this was still ahead of any of the first five months—and August soared to 75,400. September was the top month with 82,000 shipments, after which the curve dropped off steadily to a low of 50,000 in December.

Conversion burners followed a similar pattern, with August, September, and October the three best months.

This fact of life about househeating is well known among the manufacturers and associations, who key a great deal of their heating sales effort to the summer season. Now is the time (they know) to start softening up the market to make the sale before the first icy blast of winter hits.

Not only is now the time, but now is also the year. LPG for househeating has been catching on of late; particularly in the North, where unfavorable conditions and the long history of competing fuels slowed its progress at the start, it is now coming on with a rush. Dealers are recognizing there are more ways than one to skin this cat. Adequate storage and the development of off-peak loads—even some highly unusual ones—are two ways. The producer, for his part, has been helping too with his underground storage programs. It is estimated that at the end of February, there was 117 million gal. of LPG in the underground banks, representing about a 60% increase over the previyear's record on the same date.

Fuel for the Asking

The effect of this storage has already been felt, but in a slightly different manner than had been anticipated—or than is to be desired. Stocks of gas that had been held too long in storage became distress stocks in the early spring, and in many areas around April 1 the fuel

was to be had almost for the asking. This situation has long since begun to ease, and in the final analysis, this growing underground account should bring the industry a stability such as it has never known before.

In working up his off-peak business to enable him to carry more househeating accounts, the dealer has found that an average tractor operation will offset the peak-load effects of from three to four househeating jobs. The arrangement is not too different from the pattern which the gas utility companies long since provided him with: offset your winter peaks with "interruptibles." One chief difference, however, is in the dealer's favor—he can build up loads that interrupt themselves. Selling at a substantial loss is hardly necessary when one is not obliged to shut off the customer's supply on short notice.

Househeating Demand

The experience of many utilities in the postwar period has been enlightening. Suddenly faced with an overwhelming demand for househeating installations without any corresponding increase in demand for the base-load uses, utilities throughout the North and Northeast added all the househeating users they could possibly supply. For all above that figure, they obtained approval of their state governing bodies to set up systems of "rationing." Some people are still on the waiting lists after several years. But just as fast as these utilities can obtain new supplies of gas, they are accommodating the more patient of these gas-seekers, those who are still holding out for gas no matter what. The point is that many utilities are not waiting for favorable load balances; they are proceeding to take all the househeating customers they can supply and concurrently redoubling their efforts to obtain new interruptible loads—or to find new storage locations—or even to build new peak-shaving plants to ease the dead-of-winter strain.

● ". . . statistics prove that, with proper promotion and well-directed effort, the sales curve in househeating can show a healthy hump in mid-summer."

One successful utility, Brooklyn Union Gas Co., has been going to extremes to add new househeating load on the one hand, and offset it on the other. Selling efforts that were applied following the introduction of natural gas brought the annual sales of central heating units from just over 2000 in 1949 to 8600 in 1953. And as if this gain were not enough, this year the company lowered its gas heating rates and began a big new drive for even more househeating sales. But at the same time BU has been working hard on the other side of the fence: it has devised so-called "fuel door burners," "immersion coil burners," "coal pot burners," and combination gas-oil burners." The idea behind each of these was to make available special burners for "fringe" and off-peak uses. In each application, coal or oil was the primary fuel used—for heating, and, usually water heating, through a boiler hookup. Offpeak, in the fringe periods of the fall and spring, only a small amount of heating is needed, and gas can do this economically—even in large apartment houses such as BU serves. Production of hot water in the summer need not depend upon a full-sized dual-purpose boiler. These applications, then, were just what the company needed to even out the load enough to permit a few thousand more winter-peak gas users to join the gas fold.

● "LPG for househeating has been catching on of late . . . in the North, where unfavorable conditions and the long history of competing fuels slowed its progress at the start, it is now coming on with a rush."

LPG Comes of Age

Such loads as these are not available to the LPG dealer, of course, but the basic philosophy is highly applicable.

Nineteen fifty-five is also *the* year in other ways. Stability has set in, to a certain extent; the industry has come of age, and the days of spectacular growth are probably past. Loads these days are a little harder to come by. But stability does not mean senility, and there are numerous opportunities left—they just aren't knocking so loudly these days. They are there—as one LPG operator in Kansas, who is carrying a heavy peak load in Waukegan, Ill., told us. *His* load factor was upside down, so he diverted winter surpluses (!) to another state. And he's going to lose that load to the utility one of these days. Yet he's not worried.

● "In working up his off-peak business to enable him to carry more househeating accounts, the dealer has found that an average tractor operation will offset the peak-load effects of from three to four househeating jobs."

Another dealer is selling more gallonage for burning spikes off prickly pears than a lot of others sell for all the domestic, base-load uses combined. Yet another offsets his winter heating peak with—summer heating! A special deal for the resort load is enabling him to continue to build up the big winter load *(see pages 51-55)*.

Of course, motor fuel use is the best all-around leveler, among non-domestic uses, and this is enjoying its fastest growth at this very moment. It will be recalled that the last annual Phillips report estimated this growth at 25% in 1954. A good share of this is in tractor operation, a seasonal affair.

Homes and More Homes

This is also the year in home building, which is holding up surprisingly well. Despite the head wagging of the doubters, builders have gone right ahead with construction on a scale never before imagined. The day may come when the head-waggers are right and if that day comes, old jobs are going to be a lot harder to sell than the new are now.

As an art, gas househeating has come a long way in recent years. There are now dozens of ways to get the heat from the burner to the area to be warmed: forced air furnaces, gravity furnaces, wet heat, dry heat, attic heaters, wall heaters, etc., each one tailored to special uses, as well as to special pocketbooks *(see pages 56-60)*.

The growth to date in the use of LPG for househeating is shown in the fact that, while production of all gas-fired heating units has increased rapidly, the percentage of today's production devoted to LPG models is double the percentage of production just seven years ago. Warm air furnace production moved up from 1947's 188,000 units to 657,400 in 1954; LPG's share of this total jumped from 7500, which was just 4% of the total 1947 production, to 53,900, 8.2% of the 1954 production. Stated another way, while total warm air furnace production was increasing three and one-half times in seven years, LPG furnace production was increasing more than seven times.

". . . many utilities are not waiting for favorable load balances; they are proceeding to take all the house-heating customers they can supply and concurrently redoubling their efforts to obtain new interruptible loads —or to find new storage locations—or even to build new peak-shaving plants."

Conversion burner sales gains followed a similar growth pattern. In 1947, total sales were 70,000, of which 1700—or 2.4%—were LPG units. In 1954, of a total production of 224,000, 7800—or 3.4%—were LPG-fired. Thus, while conversion burner production was increasing slightly more than three times, LPG units were gaining more than four and one-half times.

In other househeating categories, comparative figures for earlier years are not available, but LPG's share of the market in 1954 was impressive:

Vented recessed wall heaters: total shipped, 345,000; LPG shipped, 65,600, or 19% of the total.

Gas floor furnaces: total shipped, 157,200; LPG shipped, 39,000, or 24.8% of the total.

Direct heaters: total shipped, 1,388,000; LPG shipped, 300,000, or 22% of the total.

LPG—and gas—is today's most modern fuel. Even the competition admits it. At a recent panel meeting on fuel oil marketing problems, held at the American Petroleum Institute's Division of Refining mid-year meeting, a leading oil marketer warned that the very claims that oil made against coal so successfully a couple of decades ago are now being used against them by gas. The claims: the fuel is the "modern fuel," fully automatic, clean, and convenient.

"Some fuel oil marketers are just beginning to wonder," mused William F. Briggs, president of the Valley Oil Co., Middletown, Conn., "if they are now in the same position in which coal found itself in the twenties as the monster 'modern automatic fuel' loomed up on the horizon."

Parenthetically, it's of interest to note how these big marketers think they can get back in the swim. Mr. Briggs thought it would be necessary to beat the competition on the same grounds. "We will need to make oil heating as good as the customer thinks heating should be. Home owners want fully automatic heating.

". . . househeating has come a long way in recent years. There are now dozens of ways to get the heat from the burner to the area to be warmed: forced air furnaces, gravity furnaces, wet heat, dry heat, attic heaters, wall heaters. . . ."

They don't care whether it's gas or oil. They want prompt, courteous, friendly, clean service and service without cost if they can get it. They want it on a 'breakfast-in-bed' basis."

Pointing to the use of dirty oil trucks, non-uniformed or semi-uniformed drivers, poorly trained service men, and carelessly installed equipment as contributors to the present state of things, he concluded "What we need is a new frame of mind—a new look."

D. L. Barrett of Esso Standard thought improvement in delivery methods was important. A survey he conducted showed that the most effective delivery program would include a degree-day system for automatic deliveries, printed meter delivery tickets, budget payment plans, and competent, courteous personnel.

Not too much different, in other words, from sound LPG marketing tactics.

History, in the form of Mr. Briggs' warning could conceivably repeat itself, with a different cast. It is not impossible that some day LPG dealers might find themselves cast in the role that was once played by coalmen, and is now being thrust upon oil dealers. And the new "monster on the horizon" might well be our old No. 1 nemesis, Reddy Kilowatt.

That's neither as far-fetched as it might sound nor as far away as it would seem. There's ample evidence that the giants of the electric industry are bending their best efforts toward a spreadeagling of the air conditioning field. To date, the history of domestic air conditioning has been pretty much of a straight electric-and-gas story—electricity for the cooling cycle, gas for the heating cycle; sometimes in a single unit, sometimes in separate units. But both industries have now worked themselves into the jackpot loadwise: gas has a worse-than-ever winter peak load problem, and electricity has a similar summer headache. So, while gas appliance manufacturers have suddenly turned a spotlight on research into cheaper and more competitive methods of air conditioning homes (we have only had one up until now), the electric appliance manufacturers are scheming to take our winter heating load away.

The heat pump is now an established fact. It still leaves something to be desired, but that will not deter the competition. By 1960 it's liable to be a major force in the air conditioning field. And resistance heating is now posing a threat. Take the example of Cleveland, where alert gas merchandisers have rolled up a high saturation and a 12-to-1 ratio over oil for househeating. Despite this aggressiveness, 560 homes are heated with electricity at a rate that does not go below 1.7 cents per kwh. The cost of operation is triple that of oil and even greater when compared to gas. Yet the load continues to grow.

". . . while production of all gas-fired heating units has increased rapidly, the percentage of today's production devoted to LPG models is double the percentage of production just seven years ago."

Strangely enough, the homes are not those of the wealthy. They are homes having as little as 1000 ft of floor space. One gas man observes that "the users are interested more in a price they can afford to pay than they are in a low-cost operation."

These homes are also tightly insulated, which naturally cuts down the fuel bill; and the extra construction cost involved is saved by eliminating chimneys or other features.

This same gasman believes these, and other examples of the growth of electric resistance heating, are "object lessons to folks who think you can't sell anything unless it's cheap."

Fortunately, our own manufacturer-allies are beginning to move—and to move rather quickly—in meeting the threat of electric heating. Coleman came forth in May with a new all-gas all-year air conditioner; two other manufacturers had just previously jumped into the breach; and, concurrently, some far-sighted utility executives are doing their best to encourage research in entirely new directions. Adaptation of aircraft gas-turbines is one of the most promising of these. The present status of air conditioning and the electric heat-pump are rather thoroughly explored on *pages 44-48*, and a case history of a successful air conditioning sales program is presented on *pages 49-50*.

There's certainly no dearth of materials for use in competitive selling. LPG operators can give the lie to the claims of oil heat dealers that gas heating is more expensive by studying the article on *pages 38-41*. Safety wise, despite the loose talk that over the years has frightened some pros-

"LPG—and gas—is today's most modern fuel. Even the competition admits it . . . the very claims that oil made against coal so successfully a couple of decades ago are now being used against them by gas."

pects, the odds are all in favor of LPG—if the dealer can put them across.

The experiences of users themselves are, of course, the best sales help. In connection with this, studies made by the Housing & Home Finance Agency, Washington, D. C., have uncovered some consumer preferences that are gratifying.

Studies made by the agency during 1945 (when gas heating was still a comparative stranger in many sections of the country) showed a customer fuel preference of 35% for gas, 30% for oil, 24% for coal, and 4% for electricity (there's that nemesis, again!). In 1946, a survey of preference among homes to be built showed 53% in favor of gas, with 21% favoring oil, and 27% favoring coal. In the 1945 survey, general dissatisfaction found among fuel users with the present fuel they were using showed a big advantage for gas. Of those using hand-fired coal, 46% wanted to change to oil, 31% wanted to change to gas, only 3% wanted to change to stokers. Among those using stokers, 31% wanted to change to oil and 39% wanted to change to gas. Among users of oil, 15% wanted to switch to gas as against 83% who wanted to

"It is not impossible that some day LPG dealers might find themselves cast in the role that was once played by coalmen, and is now being thrust upon oil dealers. . . . There's ample evidence that the giants of the electric industry are bending their best efforts toward a spread-eagling of the air conditioning field."

stick with oil. But among gas users, 89% wanted nothing else.

Dealers who believe in looking for the competitor's Achilles' heel will be interested to know the basis on which selections were made. Oil users liked oil's convenience, economy, and cleanliness, in about that order, but what they disliked about it most was its dirtiness. The apparent paradox here, wherein 16% liked oil because it is "clean" and 53% disliked it because it is "dirty," is probably explained on the basis of comparison. Those who knew nothing but coal before using oil must have felt they had hold of a white-gloves fuel. Others with better perspective realized it is not the cleanest fuel in the world. Objection No. 2 was oil's odor—12% found it objectionable.

Gas, on the other hand, won praise for cleanliness (32½%) and automatic features (22½%). Cost was the biggest objection (56%), but that situation has changed rather drastically, comparatively speaking. "Dangerous," said 15%, showing the effects that a bad press and some loose-talking competitors have exerted over the years.

Today, a decade later, no surveys are required to prove that gas househeating stands in undisputed first place in the preferences of customers. As pointed out above, it may not al-

". . . no surveys are required to prove that gas househeating stands in undisputed first place in the preferences of customers. Are you taking advantage of this situation today?"

ways be in such a favorable position. Are you taking advantage of this situation today?

In other words, are you selling househeating today?

We were interested in finding out what some of the more progressive dealers think about the best way to break into the market. Do you just jump head first?

Not exactly, replied Liquefied Gas Corp. of Boise, Idaho. "We entered the househeating business with space heaters first. Heating is one phase of the industry that requires above-average knowledge and engineering ability to sell and install satisfactory heating installations. . . . It is very essential that (the available) manuals be obtained and studied, and that a dealer start applying the knowledge in space heating before going into large central heating applications."

C. C. Owen of Surface Combustion disagrees. He feels that the manufacturers can train dealers properly to enable them to take on this load, and that no amount of experience in space heating will be of value in equipping a dealer to move into the more complex jobs.

A. C. Presley of Rotary-Sierra Co., Sacramento, Calif., feels that a dealer should start with the small jobs before moving ahead with the larger ones.

In Lamar, Mo., Schmitz Appliance Co. makes big ones out of small ones, which might well dovetail into the dealer's own training program. Schmitz sells the small spaceheating jobs, and then offers the kind of a trade-in deal people "just can't turn

down" to convert them to central heating users in fairly short order *(see pages 42-43)*.

In Daytona Beach, Fla., W. R. Conway of Modern Gas & Appliance Co. is inclined toward the opinion that "no one should start into the house-heating business on his own until he has had experience in application of direct heat as well as central heating. One can get this experience by serving his apprenticeship with a reliable concern for six months to one year and can get the theory through correspondence and service schools of the manufacturers.

"In my opinion, tremendous damage has been done in Florida in the past, both in oil, gas, and electrical equipment, by men who 'just jumped' into the business," he declares.

Some dealers would set up a separate househeating department to handle this business, if the size of the operation seemed to warrant. If the size of the company and the market, and the amount of investment capital available warrant, Mr. Conway would be in favor of it. "However," he says, "I have never been able to do exactly that, but I have had success with specialist heating salesmen."

Mr. Presley agrees in principle, "if the marketing area justifies the overhead. A separate establishment controlled in total or in part would have many advantages over a department."

His statement that "considerable help can be expected from manufacturers and distributors" was echoed by a number of dealers. These men can be of inestimable value in training dealers, servicemen, and salesmen as well as in helping the dealer organize a good househeating department.

Working through local heating contractors would seem to be a "must," but more than one dealer has found he must "do it himself." Mr. Conway declares, "It has been my experience that you cannot get adequate cooperation from plumbers and/or heating contractors. They are in the business to do exactly the same thing you are and eventually they will put you out of business. I wish it were possible to work through them, but experience has shown that they serve their best interest at your expense."

Mr. Carnahan of Liquefied Gas, Boise, agrees with Mr. Conway: "We must directly promote the sales . . . heating contractors will take the line of least resistance . . . in areas where natural gas is not available, and where coal and oil predominates, the sale of gas heating equipment falls on the shoulders of the LPG dealer."

But Walter Schuette of Hausgas in Washington, Mo., had dealer apathy to contend with—and he has made good strides in supplanting it with enthusiastic support *(see pages 35-37)*. Robert Sahagen of Rochesdale, Mass., has done a good educational job with other dealers through the medium of service schools.

But no matter what tack is taken in setting out to get the business, remember that sales, proper installation *(see pages 68-72)*, and a liberal service plan *(see pages 84-86)* go hand in hand.

Househeating is a unique market in more ways than one. It requires special knowledge; it is essential; it may take many forms; to many a householder it's a complete mystery; to a dealer it's a mixed blessing, but a real challenge at the same time.

And above all, you've got to be selling it when your mind, and the customer's, is tending to wander off into thoughts of cold drinks and cool dips. As we said, in spite of the weather, Now Is the Time to Start Selling LPG for Househeating. ■

Radiant heaters installed above car bays at the Fiesta Drive-In restaurant in Milwaukee provide comfort and warmth for patrons and car hops. This picture was taken in 34° F weather, yet car hops are taking orders without wearing jackets or sweaters.

With Outdoor Heaters, Drive-Ins Can Operate the Year Around

FROM now on the Fiesta Drive-In restaurant in Milwaukee will serve patrons on a year around basis. Joe Clark, the owner, has taken steps to assure that both his patrons and the car hops who serve them will be comfortable, even in the coldest weather.

The Fiesta becomes the first drive-in restaurant located in the cold zone of America to be equipped with an infra-red radiant gas heater of 48,000-Btu capacity. These heaters warm only those objects which cross their rays and not the air inbetween, so they are economical.

At the drive-in restaurant the heat rays go right through the glass in the parked automobiles, giving comfort to those inside the cars as well as those without. The car hops can take orders on the coldest days without wearing jackets or sweaters.

Fifty of these heaters have been installed at the Fiesta and they can take care of 50 cars at a time. According to Perfection Stove Co., licensee for the heaters' manufacture and distribution in the United States, this unit will burn approximately 150 hours on a 100-lb cylinder of L.P. gas.

Each heating dealer was supplied with a catalog and price book similar to those carried by Hausgas salesmen and also given a supply of fluorescent signs and decals for use in show windows and on vehicles.

Don't Miss It—FIRST TIME IN THIS AREA
GAS HOME HEATING SHOW
A Complete Display of The Latest in Gas Heating Equipment
THURSDAY, FEBRUARY 10
Elks Hall 10: A. M. to 10:00 P. M. Washington, Mo.
ASK YOUR LOCAL HEATING CONTRACTOR FOR DETAILS
SPONSORED BY THE HAUSGAS HEATING INSTITUTE
$50.00 FREE
Register for the Attendance PRIZE

The home heating show was designed for the heating dealer, salesman, serviceman, and customer. The first day of the three-day meet was devoted to influential groups in the market area, such as builders, dealers, and the press; the second day was heating contractors' day, and the third day was the big day for the general public.

Dealer's "Heating Institute" Brings Reluctant Contractors Into the Fold

When local heating equipment dealers showed every evidence of being satisfied to string along with the established heating fuel, oil, Hausgas created a program that they simply couldn't turn down.

By William W. Clark
Editorial Director

FACED with a chilling indifference to your fuel among heating contractors? (Who isn't?) Being human, they may not give a hang what type of equipment—oil, wood, sawdust, coal, peat, shavings—or even LPG—they install, so long as they are getting paid for the job.

But if you're like W. A. Schuette, manager of Hausgas Inc. of Washington, Mo., you'll do something about it. You might even try starting a "Hausgas Heating Institute" of your own.

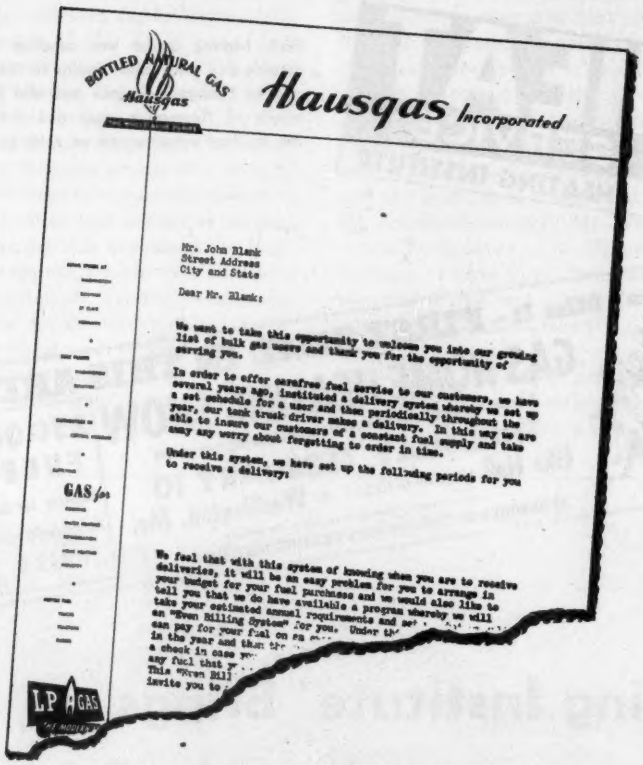
The situation that Hausgas found itself in last year was more or less typical. It had grown past the strictly bottled business stage, and here was a fine load waiting for the company to move into. The price differential was all but wiped out, so LPG was becoming competitive with oil for heating from a price standpoint. The company had gone into the bulk business in 1947, but in 1954 bulk still did not represent a very sizeable percentage of the total activity of the firm.

Business didn't walk right in the Hausgas front door. Even strong advertising and sales promotion, in which Wally Schuette is a great believer, would not bring in the house-heating business in the volumes approaching what Mr. Schuette felt he had a right to expect.

Mr. Schuette believes the lack of a nearby natural gas system may have placed Hausgas at something of a disadvantage competitively. Located in an area roughly 60 miles west-by-southwest of St. Louis, the areas in which Hausgas' outlets are located have been completely bypassed by long-distance natural gas lines. Residents of the area have been untouched by the glamor aspects of natural gas pipelines.

Even more important is the natural tendency of heating contractors to string along with the fuel they've been accustomed to working with. Oil had a big edge in the local markets. Heating contractors would "just naturally" specify it. Being plumbing contractors as well, they were on the scene before Mr. Schuette's men

COOPERATING WITH HEATING CONTRACTORS



BOTTLED NATURAL GAS
Hausgas

Hausgas Incorporated

Mr. John Blank
Street Address
City and State

Dear Mr. Blank:

We want to take this opportunity to welcome you into our growing list of bulk gas users and thank you for the opportunity of serving you.

In order to offer carefree fuel service to our customers, we have several years ago, instituted a delivery system whereby we set up a set schedule for a user and then periodically throughout the year, our tank truck driver makes a delivery. In this way we are able to insure our customers of a constant fuel supply and take away any worry about forgetting to order in time.

Under this system, we have set up the following periods for you to receive a delivery:

We feel that with this system of knowing when you are to receive deliveries, it will be an easy problem for you to arrange in your budget for your fuel purchases and we would also like to tell you that we do have available a program whereby we will take your estimated annual requirements and ar... can pay for your fuel on ra... in the year and that th... a check in case yo... any fuel that y... This "Even Bill... invite you to...

GAS for...

LP GAS

A letter is sent to all Hausgas bulk gas users informing them of the delivery schedule that has been set up for them. The letter also tells the customer about the company's "Even Billing System" whereby Hausgas takes the customer's estimated annual fuel requirement and divides the cost of this by 12, billing the customer for one-twelfth of the total cost each month and adjusting the bill the twelfth month.

Hausgas Heating Institute advertising appealed to homeowners and businessmen through the use of testimonials. Pictures of local gas-using homes and commercial establishments were used to heighten impact of the advertisements.

could get there and at that stage of the game the job was signed, sealed and delivered to oil.

Hausgas not only had to make the heating contractors appreciate the advantages of LPG over oil, it also had to make them a participant in any of its efforts to promote gas for heating. It had to *do something* for them.

The first step was to enroll these men in the Hausgas Heating Institute. For them this was an everything-to-gain and nothing-to-lose proposition. There was to be no charge for any of the institute's benefits. Each of the heating dealers was presented a catalog and price book similar to those carried by the Hausgas salesmen, with information on gas rates included. He was also given a supply of fluorescent signs and decals for use in his show windows and on his vehicles.

An advertising campaign was kicked off June 24 of last year. "Let us prove why gas heat with automatic heating equipment is today's best buy," the headline ran. The signature cut across the bottom was "Hausgas Heating Institute" and beneath it was a list of "members"—participating heating contractors from New Haven, Hermann, Owensville, Pacific, Augusta, Cuba, Washington, Bourbon, St. Clair, Union, Sullivan, and Steelville areas.

Seven newspapers throughout the Hausgas service area were used, and in each six insertions were run at two-week intervals through Sept. 2. Appeals were made both to homeowners and businessmen through the use of the testimonial technique. Photos of local gas-using homes, cafes, show stores, and other commercial establishments were used to heighten the impact.

The interest which this initial activity stirred up inspired Hausgas to expands its efforts. The next activity was the Hausgas Heating Institute show—and this is the effort that Mr. Schuette is justifiably proud of. Beginning Feb. 8, 1955, Hausgas put on a three-day show and meeting, sponsored in conjunction with manufacturers of heating equipment. The show was designed for everyone—heating dealer, salesman, serviceman—and the customer himself.

For the affair Hausgas hired the Elks hall in Washington. The participation of manufacturers was solicited. Display space was rented at $2

Hausgas has a total LPG storage capacity of 68,000 gal. with 30,000-gal. tanks located in Washington and Sullivan and an 8000-gal. tank in St. Clair. The latter was installed just last fall.

per running foot, for which Hausgas furnished backdrops, dividers, furniture, and outlets. The company also offered to provide some of the manufacturer's equipment from its own warehouse, but left the responsibility for setting up the display in the hands of the manufacturer.

Also covered by the space rentals were all charges for advertising and promotion of the event, as well as door prizes, a dinner for the heating contractors, and bar facilities.

Plans for the show were hatched at a meeting Dec. 27 at a St. Louis restaurant, to which manufacturers' representatives were invited as guests of Hausgas.

The first night's program was set up for the influential groups in the market area—builders, architects, dealers, the press, and civic leaders. It consisted mainly of a dinner and two brief talks, one by Cranston Stiff of Phillips Petroleum Co. titled "What Is L.P. gas?"; the other by Carl Langendorf of Surface Combustion Corp. on "Is It Competitive?"

The aim of this first program was chiefly institutional.

The second day was the heating contractors' day, and they were given the full treatment. An afternoon meeting was opened with a welcome by Dave Mathews, who heads the Hausgas wholesale department, followed by a talk explaining the purposes and organization of the institute, by W. A. Schuette, and presentations on floor furnaces, air conditioning, unit heaters, space heating, and water heating, by (respectively) George Strode of Empire Stove Co., Ed Gaus of Surface Combustion Corp., J. M. Bayer of Magic Chef, and Homer Brigance of Phillips.

Manufacturers represented in the displays were Empire Stove, Waldorf Heater, A. G. Brauer Supply Co., Butler-Bluebell, General Controls Co., Mueller Brass Co., Minneapolis-Honeywell, Johns Manville, Magic Chef, and Surface Combustion. Following the afternoon session, the "trade show" began, at which time the dealers were free to inspect the displays and partake of refreshments.

At 6:30 the group moved to the basement for a dinner and a repeat performance of the first night's talks. Dealer servicemen were invited to the evening show.

The third day was the big day for the general public, and despite a spell of miserable weather, some 175 prospective customers turned out. Virtually all of them were genuine prospects, too, according to Mr. Schuette. A $50 attendance prize was one of the big lures for this part of the show.

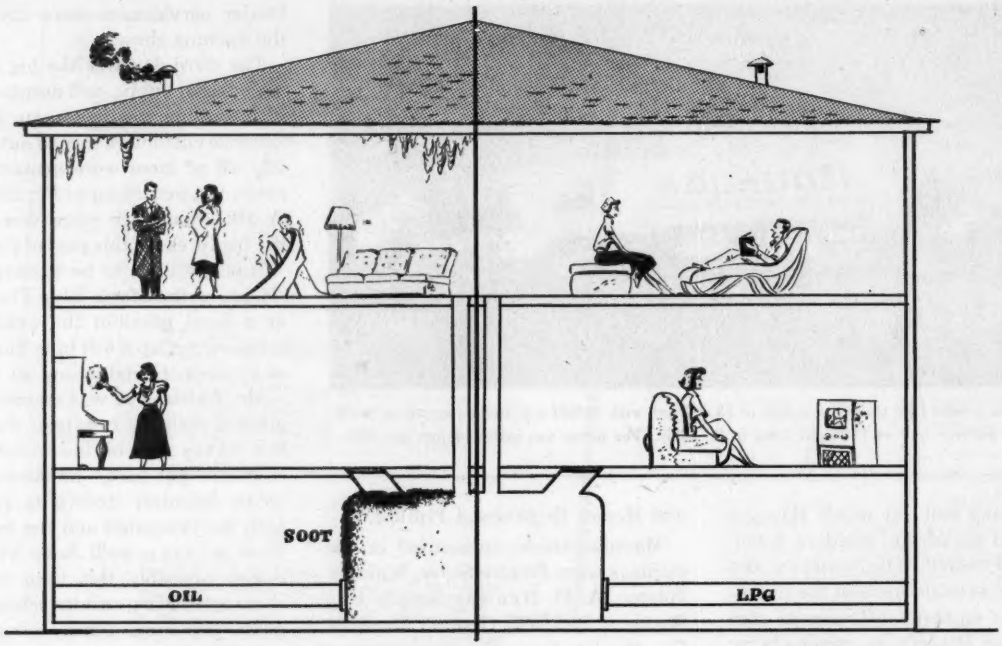
Hausgas likes to be known as the "Home of the Magic Blue Flame," so as a focal point in the exhibit the company set up a 6-ft blue flame sign as a means of heightening the impact.

Mr. Schuette was tremendously pleased with the results of the show. But what's next on the docket?

"We're not sure," he admits, "but we're definitely going to continue with the campaign and the institute. Next winter we'll have another event; probably this time we'll include an evening service school. We'll make this more purely educational and less of a sales promotion, as far as the dealers are concerned."

At present Hausgas has stores in Herman, St. Clair, and Sullivan, as well as headquarters store in Washington. A total storage capacity of 68,000 gal. includes 30,000-gal. tanks in Washington and Sullivan and an 8000-gal. tank in St. Clair. The latter was installed just last September. ■

Following the Hausgas Heating Institute show, Hausgas presented manufacturers' representatives with photo layouts such as this as souvenirs. Three general scenes from the show were included in each individual souvenir, but in the lower left hand corner was a particular photograph showing the individual manufacturer's display.



Meet the Oil Heating Competition On the Battleground of Efficiency

By William W. Clark
Editorial Director

LPG faces a firmly entrenched foe in the househeating market; oil got there first and is considered a modern fuel for this use by many. However, LPG can meet and beat the competition on grounds of fuel efficiency, and several studies have been made which provide the dealer with the necessary ammunition.

WHEN an LPG operator decides to begin taking his rightful share of the househeating market (and that should be practically all of it), he finds himself smack up against probably his most deeply entrenched competition in the domestic market. In cooking and water heating, gas had a healthy headstart on electricity, and other forms of energy are now clearly recognized as old-fashioned. But when it comes to househeating, in most areas oil got the headstart and, for some inexplicable reason, it is also considered a modern fuel for this use.

Much Better Fuel

So chances are many of his prospects are on oil heat when he first begins cultivating them; and more than that, oil heat salesmen are selling new jobs every day. Householders who have never known the joys of heating with LPG, but are overly familiar with the grime and mess connected with coal and wood burning, are easily impressed with the merits of oil. They have no way of knowing that there's a fuel available that's much better for the job.

It hasn't been so long ago that the advantages of LPG were purely academic, because very few customers were willing to pay twice the oil price —or more—for those advantages. LPG dealers had no need to pick up the gauntlet for the househeating load; the battle was lost before it began. Aside from a smattering of non-price-conscious customers who were willing to take gas at the bottle price, hardly anyone north of the Mason-Dixon line was an LPG househeating customer.

Prepare For Assault

All that's changed now, of course, but oil heat dealers, aware of the growing threat of LPG, are going on the offensive to stop the invasion before it really gets up momentum. And in some places they are playing fast and loose with facts. The wise dealer will be prepared for such an assault.

Gas utilities in the northern belt, many of which had no natural gas and consequently practically no househeating business until after the war, have already had a sample of the oilmen's tactics. As is well-

known, the glamor and obvious advantages of natural gas—and some astute and concentrated utility salesmanship—all but ran oil heating off the map in a number of major cities. Virginia, New York, Pennsylvania, Maryland, and other locales found oil dealers getting panicky. Banding together as "oil heat institutes," "oil heat associations," and the like, they quickly built up a war chest to fight gas. Large newspaper ads proclaimed:

"Oil heat costs less than gas!"

"Oil heat is safe!"

"If you have money to burn, go ahead and burn natural gas!"

Alleged Advantages Illusory

These efforts paid off to a degree. But utility companies did not stand aside and let oil heat's tactics bar the portals. They trundled in some facts and figures that proved oil's alleged advantages were purely illusory. These same figures, and the scientific data that were used in establishing them, can be used by any dealer to establish the true picture of comparative costs.

One of the best of these studies was made by the Philadelphia Gas Works Co. in answer to some unfounded claims that oil heat cost less in the city and suburbs. The end result of the study boiled down to the single figure, which the LPG man would do well to paste in his hat:

The efficiency of 1 gas Btu equals the efficiency of 1.458 oil Btu.

In other words, at the same price per Btu for both fuels, a dollar's worth of gas would do the same job as $1.46 worth of oil.

The study was thorough and scientific. In the summer of 1954, a team of technicians made the rounds of more than 2000 Philadelphia homes in an effort to find equal numbers of homes heating with gas and with oil. All types of fuel applications were included; but most important, each gas-heated house selected for study had an almost identical counterpart using oil heat. One hundred twenty-eight homes were finally selected, of which 64 were on gas and 64 on oil.

Consumption figures were developed by careful calculations based on summer vs. winter loads, whereby gas usage as shown in the company's records was split between heating and non-heating applications. Records of oil deliveries for househeating were obtained from the householders.

Heat loss calculations were figured for each gas-burning house and its oil-burning counterpart. The only physical differences permitted in the houses studied were in the number of storm sashes involved. In most cases, both houses in a pair were in the same block, and each had the same geographical exposure as the other.

The results of the study are shown in *Table 1.*

It was found that the results of this study confirmed, or at least very closely approached, the results of similar surveys. A. L. Carroll of Consolidated Edison Co., a combination utility in New York City, had previously made a study which showed that 1.422 oil Btu's equalled 1 gas Btu. Fifty-six gas-heated houses and 51 that used oil were studied, with adjustments made as needed to assure complete fairness and objectivity in the testing. In the area the normal heating season is 5090 degree days, so the findings were related to this base; and the fuel requirements per 1000 Btu heat loss were found to be as follows:

For gas: 4123 cu ft of 537-Btu manufactured gas, or 2100 cu ft of 1055-Btu natural gas, or 22.14 therms.

For oil: 22.5 gal. or 31.5 therms.

The relative efficiency was determined by dividing 22.14 by 31.5, to obtain an efficiency rating for oil of 70.3% that of gas. Expressed another way, it requires 42% more oil heating units to do a job equivalent to gas.

Further proof is contained in the studies of the American Petroleum Institute, which found that the relative efficiencies of gas and No. 2 fuel oil are 74% and 66% respectively. This is a much more conservative figure than any other sources show.

TABLE 1

RESULTS OF CALCULATIONS

		Total Fuel Consumed Therms/Degree Day	Total Structure Heat Loss Btu/Hour	Average Fuel Consumed Therms/°Day/M² Btu/Hour	
Oil 140,000 Btu/gal.	Conversion Burner	16.0867	3,001,249	5.360	
	Designed Unit	3.7911	767,331	4.941	
	All	19.8778	3,768,580	5.275	(3.768 gallons/°D/M² Btu/Hr.)
Gas 720 Btu/C.F.	Conversion Burner	2.5333	686,100	3.692	
	Designed Unit	11.1102	3,083,981	3.603	
	All	13.6435	3,770,081	3.619	(502.6 cf/°D/M² Btu/Hr.)

Average oil heated home heat loss (0° — 70° Basis) = 58,884 Btu/Hr.

Average gas heated home heat loss (0° — 70° Basis) = 58,908 Btu/Hr.

Replacement Factor

$$\frac{\text{Conversion Burner, Oil}}{\text{Conversion Burner, Gas}} = \frac{5.360}{3.692} = 1.452 \text{ Oil Btu to 1 Gas Btu}$$

$$\frac{\text{Designed Unit, Oil}}{\text{Designed Unit, Gas}} = \frac{4.941}{3.603} = 1.371 \text{ Oil Btu to 1 Gas Btu}$$

$$\frac{\text{Conversion Burner, Oil}}{\text{Designed Unit, Gas}} = \frac{5.360}{3.603} = 1.488 \text{ Oil Btu to 1 Gas Btu}$$

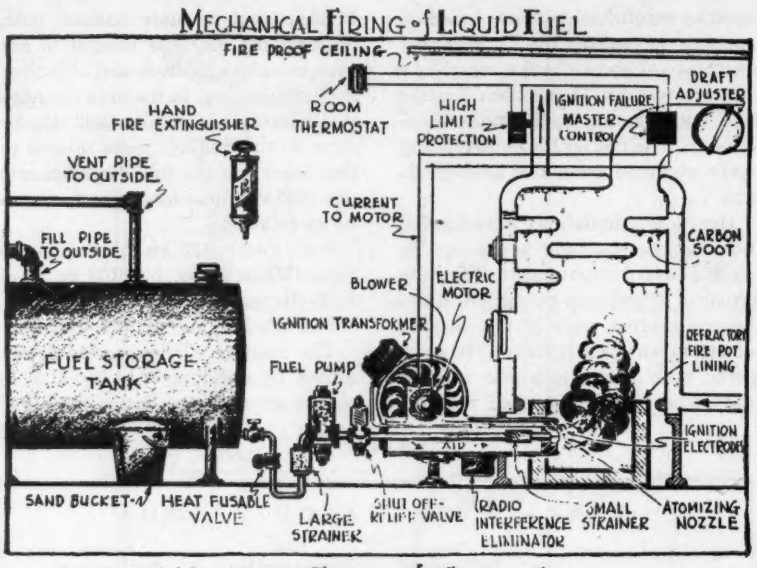
$$\frac{\text{Designed Unit, Oil}}{\text{Conversion Burner, Gas}} = \frac{4.941}{3.692} = 1.338 \text{ Oil Btu to 1 Gas Btu}$$

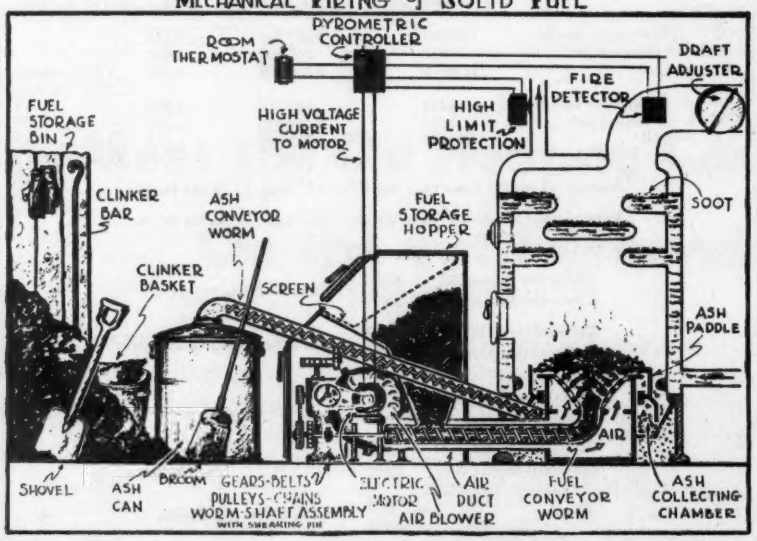
$$\text{All—} \quad \frac{\text{Oil}}{\text{Gas}} = \frac{5.275}{3.619} = 1.458 \text{ Oil Btu to 1 Gas Btu}$$

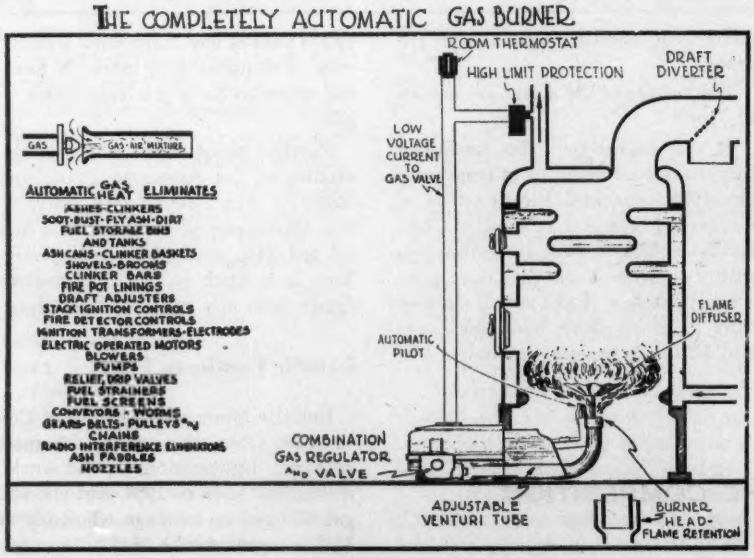
Battelle Conducts Tests

Battelle Memorial Institute of Columbus, Ohio, one of the foremost research organizations in the world, conducted tests in 1936 that showed gas to have an average efficiency of 73% as against oil's 58%.

MEET THE COMPETITION







Ample evidence to back up these findings is available, but it is only natural to inquire as to why gas (either natural, manufactured, or LPG) should enjoy this marked edge in efficiencies. Mr. Carroll, in his research and inquiries, advanced the opinion that the following factors are significant.

1. More complete burning of fuels in the primary gaseous state.

2. More accurate control of gaseous fuels, during both ignition and operation.

3. Extended residual draft (continued draft during off-cycle) of oil-fired equipment due to: (a) Generally larger and more massive heat transfer surfaces; (b) Higher flue gas temperatures resulting in greater heat retention in flues, particularly of the masonry type.

Wasted Btu

(During the extended residual draft, it would be anticipated that more pounds of hotter flue gases—wasted Btu—would be vented through the flue with oil-fired equipment, which, in turn, would indicate the probability of a higher infiltration for combustion and relief through the draft control device.)

4. Incomplete burning of oil during cold starts or intermittent firing resulting in poor efficiency and oil wastage in the form of oil vapor, particularly during periods of light loading.

(This factor was established in tests made at the University of Wisconsin by Dr. J. R. Akerman and others. Dissatisfied with the poor correlation between the average performance of an oil burner as shown by actual consumption and the efficiency as determined by certain tests that had been "commonly accepted as correct," the Wisconsin group undertook tests using different methods.

Combustion and Losses

(Said Dr. Akerman in commenting on the "commonly accepted" tests: When the burner has been operating for a substantial period of time under favorable conditions, an efficiency determined by these methods is typical and useful. . . . However, when the burner has just been started or

Illustrations courtesy Surface Combustion Corp.

when other conditions unfavorable to combustion occur, there will be other products of combustion and other losses in heat release which are not accounted for by the commonly accepted methods."

(The tests were made on a pressure atomizing oil burner of the 1- to 3-gal./hr class with an insulating type fire brick combustion chamber installed in a steel boiler with a net rating of 96,000 Btu/hr. Efficiency was determined by comparison of the actual heat recovery with the heat equivalent of the oil fired.

(The tests showed that these efficiencies were in the order of 42% during the "warming-up period"; that is, until the refractory attained a temperature of 950° F, and approximately 65% when above that temperature. These results, in the opinion of the author, shed considerable light on the reasons for the relatively high fuel requirements of oil burning equipment for an entire heating season.

"Light Load"

(During a large portion of the heating season, the heating plant is operating in relatively "light load," that is, when the "on time" is short in comparison with the "off time." During the spring and fall seasons this is particularly true and therefore the low efficiency prevailing during the warming-up period would be very significant.)

5. Soot formation on heating surfaces of boiler or furnace, due to incomplete combustion caused by cold starts or faulty initial or eventual adjustment of the burner, resulting in poor heat transmission from combustion products to steam, water, or air.

6. Unstable draft conditions, resulting in excessive heat loss up the chimney.

7. General overabundance of excess air.

8. Difficulty in setting and maintaining proper input with oil equipment.

9. Generally higher flue gas temperatures.

There you have the picture on relative efficiencies. Take your pick of the percentages; even with the most conservative of these, the American Petroleum Institute figure, LPG is bound to win out.

But the economy story does not end there. Annual burner adjustments are a "must" with oil if even the efficiencies as determined in the tests cited are to be maintained. Ebasco Service found this job to average out at $15 per home. Power cost must also be considered; Ebasco tabbed this, on a "typical" Richmond (Va.) home at $7.50 per year, based on an annual usage of 698 gal. of oil, for which 250 kwh at 3 cents would be required.

Appear Conservative

Up and down the line, these figures appear to be the most conservative of all authoritative studies.

Economy, to date, has been a defensive selling area, for obvious reasons. The higher cost of the fuel was such that even relative efficiencies were not sufficient to tip the scales the other way. On the other hand, the LPG operator has many fuel advantages to call upon in making a competitive sales pitch; these are too well known to bear repeating here.

But one last reminder: in some areas, the oil heat dealer is going to drag in that libelous chestnut about LPG not being safe. May we heartily recommend that you keep your copy of January BUTANE-PROPANE *News* handy, and open to Pages 46-47—The Fire Loss Chart—to throw the lie back at him. ■

CONSIDER ALL THESE ITEMS WHEN BUYING ANY TYPE OF HEATING

ELECTRICAL CONSUMPTION (for operating motors—blowers—ignition systems—pumps—conveyors.)

Mark (X) the fuels that must have electrical power to burn automatically.

SERVICING EQUIPMENT (Expense of maintaining heating plant—adjusting and cleaning burner—cleaning boiler flues and chimney.)

Mark (X) the fuels requiring moving parts and machinery that will need adjusting—cleaning attention.

Mark (X) the fuels that do *not* have a permanent, dependable company to take full responsibility for the fuel equipment operation—and service.

EQUIPMENT DEPRECIATION Amount which should be charged off annually based on original cost and lifetime of equipment.

Mark (X) the equipment which has limited lifetime.

Mark (X) the equipment requiring the greatest initial investment.

REPAIR PARTS Replacing firepots, grates, smoke pipe, hearth or combustion chamber—door linings—strainers—motors, pumps, ignition systems.

Mark (X) the equipment requiring these parts that will wear out and need replacing.

FUEL (Cost of fuels per season based on equivalent amounts of heat.)

LABOR—Caring for furnace, banking fires, (assume 30 mins. per day at ____ per hr. for ____ days). Emergency service due to sudden equipment failure, plus labor of cleaning house due to dirty fuel—or what it is worth to you to eliminate this nuisance.

Mark (X) fuels that need handling.

ASH DISPOSAL—Cost of containers, shovels, brooms, gloves, municipal disposal expense—or what it is worth to you to eliminate the nuisance of handling the ashes.

Mark (X) fuels that have a residue—that do not burn completely.

CLEANLINESS—Added expense of cleaning and laundry bills . . . replacement of curtains, drapes, rugs, soiled by furnace soot, smoke and dust.

Mark (X) the fuels that *do not* burn completely—that *do* cause soot, clinkers, fly ash, smudge grease and dirt.

STORAGE SPACE—Value of space now used for fuel storage which could be available for other purposes such as storage, playroom, workroom.

Mark (X) the fuels that must be stored in basement or on premises.

HEALTHFUL TEMPERATURES—Expense of physician and medical costs—or loss of working time, caused by uneven temperatures, drafts, getting up in cold house.

Mark (X) the fuels with which this condition exists.

QUIETNESS—Do you place any value on permanently quiet operation—for equipment that has no moving parts to become noisy with age.

Mark (X) equipment that is noisy and will become more noisy with use.

ORDERING—DELIVERY—Do you place any value on a fuel that does not require ordering—waiting for and watching delivery?

Mark (X) the fuels that must be ordered—delivered.

COMPLETELY AUTOMATIC—Do you place a value on being able to go away for days—weeks and forget about your heating plant? No fuel to order—no fires to start.

Mark (X) the fuels that make this possible.

THIS TOTAL IS YOUR ACTUAL HEATING COST

With a $10,000 inventory of parts and tools, Schmitz Appliance has all the essentials required to do a good job of installing and servicing heating equipment and appliances. There is seldom a delay on servicing because a part has to be ordered.

Trade-In Plan Provides In
Customers to Change to

One out of every four customers switches to f
dealer's plan that allows as much as 85% on c

THERE is a good reason why one out of every four persons who purchase a space heater from the Schmitz Appliance Co., LPG dealer in Lamar, Mo., eventually returns and buys a central heating plant.

Converting a space heater customer into a potential buyer of a central heating unit is a smooth, easy job with the proper incentive is provided, according to Carl D. Schmitz, owner.

The incentive offered space heater buyers by this firm is the proposal that if the customer will trade in his space heater for a central heating unit within a reasonable length of time, the firm will take the heater as a trade-in at a discount of only 15% per year under the original price paid for it.

"This means that a customer who buys an $89 space heater has the use of the equipment for the year and then may trade it in for a central unit for only about $14 less than he paid for it," pointed out Mr. Schmitz. "It's an attractive deal and a lot of our customers go for it. We give it heavy emphasis at the time we close a space heater sale. We also schedule three or four telephone calls a year to buyers of space heaters to make certain they remember the offer.

Offer Makes Prospects

"This particular offer has been a big help in making everyone of the 70 to 120 persons who buy space heaters from us every year a red-hot prospect for a central unit," he added.

"The offer is triggered just before the heating sales season with a big ad in the local newspaper followed by a series of smaller layouts which help sustain interest in the plan."

The promotional value of this offer is illustrated by the fact that one space heater has been re-sold four times and each time has been used as a trade-in on a central heating unit. Selling these heater trade-ins is no problem at the Missouri firm since there is always a long list of persons waiting to buy used models. The dealer says, "We can't get enough used space heaters to satisfy the demand."

Mr. Schmitz considers himself an "old-fashioned specialty dealer" because he carries only appliances and does not go into sidelines. Some of the competitors in his area carry lamps, gifts, and so on, but Mr. Schmitz features appliances only.

Select a Few

The appliance inventory at Schmitz Appliance tops the $50,000 mark. Yet the stock doesn't include a large number of brand names simply because Mr. Schmitz feels it is harder for sales personnel to learn the "product story" when the roster includes too many lines. It is also more difficult to focus the customer's attention on one or two models that are most interesting to her when there is an overwhelming selection. Mr. Schmitz believes it is far wiser to carry only one or two leading lines.

Schmitz Appliance also offers a heating package, which includes cen-

BOOST THE PRESENT LOAD

Incentive for Schmitz to Central Heating

By Grier Lowry

Schmitz Appliance Co. attracts from 70 to 120 space heater customers a year. Each is turned into a good prospect for central heating equipment by the company's trade-in and discount plan.

to furnaces under
on old heaters

tral heating unit, hot water heater and, in a growing number of cases, an air conditioning unit. Cleanliness, economy, and even distribution of heat are the points used by personnel to sell this package. Domestic installation for the package ranges from $850 upward and commercial sales start at $2000.

"The healthful qualities of central heating units carry a lot of weight with our customers," says Mr. Schmitz. "The fact that with a good filter system there is no dirt never fails to make a good impression on feminine prospects.

"In switching prospective buyers from oil to gas," he explained, "we tell them that they can do the complete job of cooking and heating with gas for the cost of heating only with oil. We install a great many packages which include heating and cooking facilities, as well as hot water for a brooder stove, for a stock watering tank, and so on."

New Business

The fact that the firm has its own service department is an important merchandising point, Mr. Schmitz feels, since it is essential to keep old customers satisfied through prompt, efficient maintenance of their appliances. The service department is also an important means of bringing in new business.

With a $10,000 inventory of parts and tools, the company has all the essentials required to do a good job of installing and servicing ranges, heaters, furnaces, etc. Fittings, both copper and galvanized, are kept in a series of roomy bins, each labeled with name of part, price, size, and name of manufacturer. The fact that the firm can make almost any kind of repair without ordering a part has made many a new friend for the firm.

A Guarantee

Every piece of used equipment sold by the firm carries a 90-day guarantee. Customers who become dissatisfied with a purchase during this period may return it and receive credit on any other merchandise.

In cases where central heating plants, or space heaters, are sold during the hot weather season, the customer is informed he has until Jan. 15 of the following year to register any complaints and receive free service and replacements on defective parts. The dealer feels that it is important that a heating installation operate for a reasonable period during the cold-weather months so that any defects will have ample time in which to show up.

Follow Through

A one-year free service guarantee is placed on any new appliance sold and this feature has helped clinch many a sale, according to Mr. Schmitz. The dealer believes permanent customers are made or lost in the service department and he is careful to follow through on any complaints, no matter how minor they may seem.

A favorite appliance promotion is a newspaper ad that features the offer of free butane with purchase of new appliances. The firm uses newspaper advertisements on an every-other-week schedule and promotional benefits have been reaped from ads that feature special deals to readers. Most recent example was a full-page ad layout that publicized a special offer of 100 gal. of gas free to people who bought a gas range and 1000 gal. of gas from the firm. This promotion, which meant the average user of gas had about two years supply of fuel for cooking purposes, clicked for sales of 10 stoves. ■

Photo: Coleman Co.

A sudden flurry of interest in gas all-year air conditioning is resulting in some exciting new developments. Several major manufacturers are just now bringing out production models of gas engine-driven compressor-type units. The unit at left is a Coleman air conditioner, shown ready for installation in a large home for test purposes.

Gas Moves to Capture the Summer "Volume" Load...

AIR-CONDITIONING

By Harold C. Hood
Field Editor

SELLING LPG for househeating is only a half-way measure in landing the real *volume* domestic load. The real challenge is to stretch this load out through 12 months of the year.

Today, there are looming on the horizon new and better means for meeting that challenge. Domestic gas air conditioning, long a lonesome monopoly that was too expensive for the "small man's" pocketbook, is being fortified with new products by several different manufacturers. It is truly showing promise of becoming an honest-to-goodness "industry."

And not a moment too soon. The electrical industry, which has had things pretty much its own way in serving the cooling portion of the year-round air conditioning load, is building up a summer peak load that threatens to become even more painful than the winter peaks that the gas industries have brought upon themselves. And electricity is a pretty difficult thing to store in tanks, holders, or underground caverns. So, something must be done, and in their typically aggressive way, the giants of the electric industry have decided to balance things out by taking away our winter heating load—just as we are getting a good start!

Just how the electrical interests intend to take over the year-round air conditioning load is hinted by Phillip D. Reed, chairman of the board of General Electric Co., who says:

AIR-CONDITIONING LOAD

"The development that has us most excited is the heat pump. It can cool your entire house in the summer, heat it in the winter, and condition air all year long. To operate, it requires only air and electricity, no fuel or water. In the winter, believe it or not, the heat pump draws air in from outside, extracts the heat from the 'cold' air (regardless of how low the temperature) and uses that heat to warm the entire house! The heat pump, incidentally, eliminates the need for building an expensive chimney in your home.

"When we first introduced the heat pump, it was a luxury item. Within a few more years we hope to get the price down below $2000 per home. Within a decade we expect to be selling more than 1 million of these heat pumps a year."

The gas industry has a few Mr. Reeds of its own, manufacturers who are confident that gas and LPG need not be limited in their cooling appli-

Electricity currently dominates the summer air conditioning field. With the development of the heat pump, the electric industry intends to capture a large volume of the domestic heating load. Gas appliance manufacturers have not been sitting by idly, however, and are developing year-round air conditioners which promise to thwart electricity's ambitious plans.

cations to the absorption cycle. These men recognize the danger that the electrical industry, with its constantly improving heat pump and the millions of dollars spent on its research, is brewing for tomorrow, and are determined to meet it.

They figure that they can muffle the noise of a gas compressor and gas engine to acceptable levels, are finding ways to outstrip electricity in cooling efficiency, or believe that the gas industry can develop its own heat pumps, perhaps with modified gas turbines such as those used in today's aircraft.

More Manufacturers

Some of these men feel that they have already arrived at some of these answers. The result is that today we have not one (Servel) but four manufacturers of gas all-year air conditioning equipment. Within the past three months the companies—the Coleman Co., long a respected figure in the househeating field; Cobell Industries, a progressive Texas concern; and Wood Electric Co. of Camden, Ark.—have all blossomed forth with production models.

Sheldon Coleman, ex-president of GAMA and president of the Coleman Co., points out that within a few years the year-round air conditioner will call for more energy units than all other appliances combined in the average American home. Costing less than the price of an automobile, year-round air conditioning will be the rule rather than the exception in American homes. No family that ever experiences year-round "climate control" in its home will ever give it up.

Answering a question as to what form this year-round air conditioning will take, he replies: "If you would ask the average informed person this question today, he would probably say that the home would be heated with gas, and the cooling and air movement would be by electricity. That is the way the trends are running now. If it would actually work out that way, it would not be disastrous for the gas indutsry, because the heating load would be retained. Of course, the gas industry would like the summer cooling load for these millions of American homes that will summer air condition, but with storage and other peak-shaving devices the gas industry could maintain profitable operations with the heating load going to gas and the summer cooling load to electricity."

"Unfortunately," Mr. Coleman continues, "that's not the way it's going to be. The electrical industry is mobilizing all the power at its command (and hundreds of millions of dollars are involved) to take on not just the summer cooling load but the winter heating load as well."

Three years ago the Coleman Co. objectively evaluated its background skills, resources, and objectives and decided that it should undertake as a major project gas air conditioning development. Initial studies narrowed the field to 10 refrigerating methods which then were reduced to four basic cycles. Speaking of the progress made by his company, Mr. Coleman said, "I sincerely believe that the gas industry has a chance of getting a substantial share of the air conditioning market, with at least a chance of dominating it."

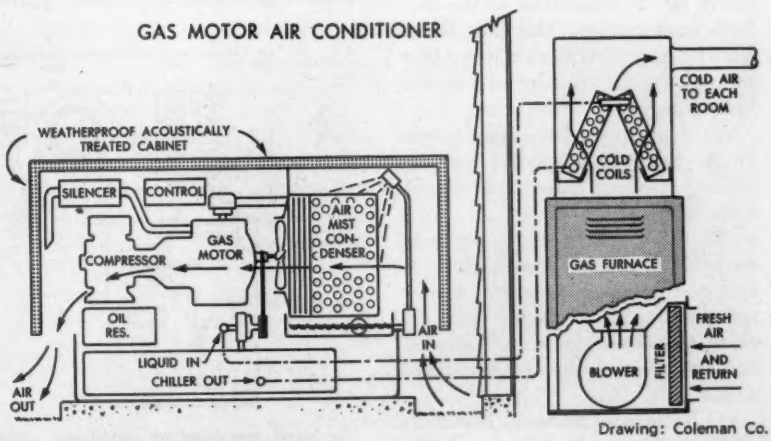
The four cycles on which the Coleman Co. is concentrating its research are: the gas engine-driven compressor, the binary-type refrigerant jet, adsorption, and open absorption. Greatest progress has been made on the gas engine model, and if all goes as well as expected, the company plans to market limited production of a practical, economical gas-powered summer air conditioner next year.

Installed Outside

The present test model gas motor air conditioner, which is seen as the immediate forerunner of next year's production model, is a remote unit for installation outside the house. A cooling coil is installed inside, either in the furnace plenum or as a separate unit. With the plenum coil, the equipment requires no floor area aside from that already used by the furnace.

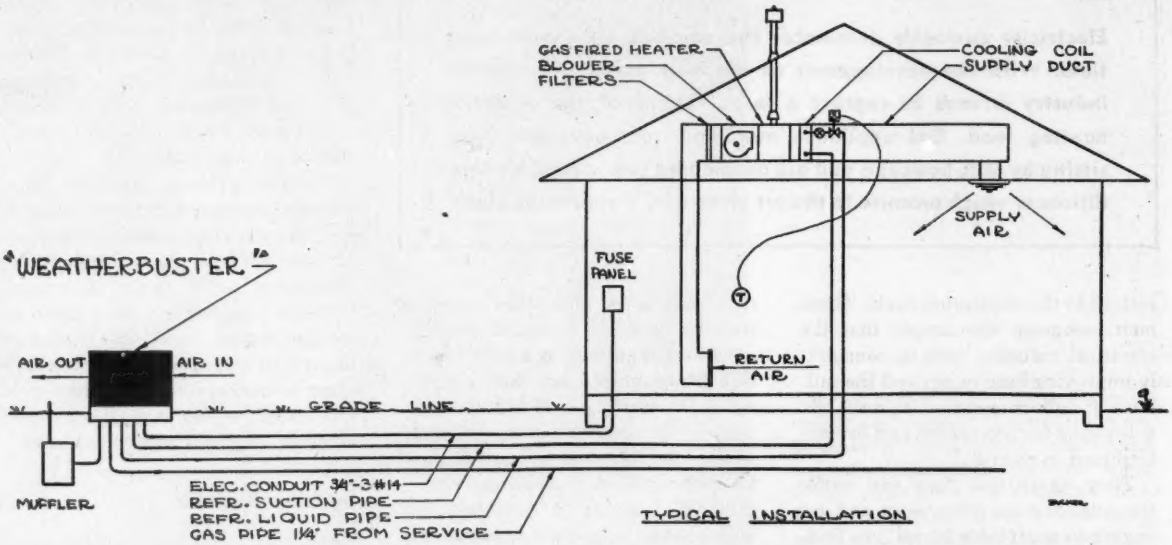
Mr. Coleman gives this description of the equipment:

"Inside a neatly styled, weatherproof acoustic housing is a complete factory-assembled refrigeration system. When we say complete in this case, we mean really complete. Inside this box, which is no larger than the cooling tower required for an ordinary system, is everything neces-



Drawing: Coleman Co.

Major components of gas-motor-driven air conditioning unit are shown in schematic drawing. Refrigerant circuit is entirely self-contained. Chilled liquid lines leading from the remote unit to the cooling coil inside the house would be easy and inexpensive to install. The cooling coil shown is an inverted-V type installed in furnace plenum. A separate interior cooling unit with its own blower could be used.



This gas air conditioning unit is installed outdoors on a 12-in. concrete slab. The muffler is buried 24 in. below grade to provide extra sound insulating properties. The unit is said to be suitable for installation with any well designed new or existing air conditioning system.

sary to convert the heat energy of gas into a chilled liquid."

Included in the Coleman unit are the following items: air-cooled gas motor, refrigeration compressor directly connected to the motor, evaporative condensing unit with pump and hydraulic slingers, liquid chiller, liquid circulating pump, 110-volt starter, muffler, oil reservoir, and controls.

The company lists these highlights of the gas motor system:

(1) The evaporative condenser operates on the wet-bulb temperature of the air, which rarely if ever rises above 80° F, regardless of the dry-bulb temperature. This unit is frequently 50 to 60% more efficient than an air-cooled condenser of the dry-bulb type.

(2) The direct-drive starter runs on 115-volt AC. It is simply plugged into an ordinary household convenience outlet.

(3) Initial installed cost would probably be slightly higher than the cost of an electrical system of comparable capacity. However, when operating costs are considered, the advantage in most areas is on the side of gas.

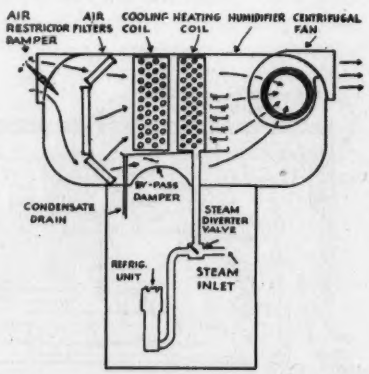
(4) Noise is no problem. The unit's enclosure is acoustically treated. The noise level compares favorably with present electric air conditioning equipment.

(5) No special equipment or skills are required to service the power unit.

(6) The compressor is coupled directly to the drive shaft. No belts or pulleys are used.

(7) The goal in motor life, which is believed to have been reached, is a unit that will run for 10,000 hours without a major overhauling. This is equal to five full cooling seasons in Houston and New Orleans, and considerably more than five seasons in regions farther north.

(8) Regarding servicing, the Coleman Co. expects to eliminate all necessity for servicing during a cooling season up to 2000 hours long. Spark plug life has already been extended to over 2500 hours, and distributor point life is up to approximately 2200 hours. The unit incorporates a large reservoir for lubricating oil. Once the tank is full it requires no more oil for the entire season.



The Servel year-round air conditioner works on the absorption system. Inlet air is drawn into the unit by the centrifugal fan, and through the heating or cooling coil, depending upon the season. Air is then filtered and forced through ducts into the house.

Work on the company's other types of refrigeration systems is being done by independent research organizations under Coleman's direction. Arthur D. Little Inc. is working on the binary-type refrigerant jet system; Texas College of Arts & Industries is working on adsorption, and the Institute of Gas Technology is working on open-type absorption.

Cobell Industries Inc. recently announced that its new model, capable of producing a ton of refrigeration for each horsepower of gas engine rating, will be on the market early this summer. Stock models of this unit will be available in sizes from 3- to 10-ton capacity. Initial price will run about $1500 for a unit sized to condition a three-bedroom house. Cost of operating this unit on natural gas is reportedly one-half the cost of electric air conditioning, based on gas at 65 cents per Mcf and electricity at 2½ cents per kwh.

The manufacturer claims that the high refrigeration-to-horsepower ratio is obtained by the manner of operation. The gas-powered reciprocating prime mover drives a standard air conditioning compressor through

a centrifugal dry-type clutch. The clutch permits the engine to attain a speed of approximately 1000 rpm before engaging the load of the compressor. According to Thomas W. Carraway, thermodynamic engineer and designer of the Cobell air conditioner, the starting torque of the unit is thus reduced, and permits a reduction in the size of the required gas engine, both in horsepower rating and physical dimensions.

Reduction in Size

Further reduction in the size of the required engine is accomplished by using Cobell's "aqua-fog" evaporative condenser, which combines fine water spray and mist with forced air for a rapid heat transfer.

Wood Electric Co. has also made substantial advances in the gas air conditioning field. Its product, known as the "Weatherbuster," is also an automatic, air-cooled condensing unit using a gas engine to drive a reciprocating compressor and a condenser fan.

The Weatherbuster is driven by a standard water cooled internal combustion engine utilizing a hydraulic power transmission unit. This permits easy engine starting with rapid acceleration and eliminates solid connection between engine and compressor. The entire unit is mounted outside the house, and at a maximum distance of 60 ft from the air conditioning heat exchanger. The cabinet containing the outdoor equipment is internally insulated with neoprene-coated, Fiberglas sound deadening material, and is mounted on a 12-in. concrete slab.

The refrigerant piping, electrical conduit, and gas line are extended underground from the house to the Weatherbuster. These lines are buried in sand 18 in. below grade. The refrigerant suction line is insulated from a point where it leaves the cooling coil to where it enters the ground.

A low noise level is obtained by use of an exhaust muffler buried 24 in. below grade. A pipe is extended from the exhaust manifold of the engine to the muffler, and a tail pipe on the muffler discharges the exhaust gases to the atmosphere.

The engine radiator is fabricated of copper tubes with aluminum fins bonded to the surface of the tubes, and is complete with water inlet and outlet headers. The cooling system is charged with anti-freeze solution and sealed at the factory.

Servel, the original gas air conditioner manufacturer, has not entered the field of gas-engine powered units. It has managed to remain in business against tough electrical competition, and the company's popular 3- and 5-ton units are in operation in all sections of the country. Recently revamped company policies and a revitalized management group should result in new developments from Servel in the near future.

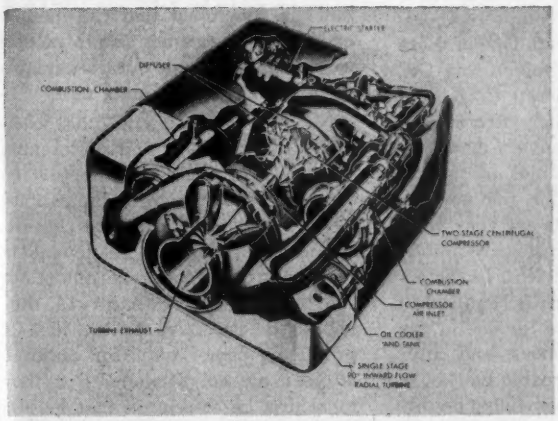
Servel, in the past, has been the largest manufacturer of gas air conditioners. Operating on the absorption principle for which Servel's refrigerators have been famous, this unit offers the home owner quiet, clean, year-round air conditioning.

Frank C. Smith, president of Houston Natural Gas Corp., presented some startling facts about the load-building potential of Servel air conditioning equipment in a recent address. "It must be emphasized," he points out, "that the Servel unit is a year-round air conditioner, built for comfort heating as well as for comfort cooling. Let me tell you that on the Gulf coast where I live, the Servel unit uses 86.1% of the average total household load, and of that portion of the gas that it uses, 70% is consumed in the cooling season and comprises more than 60% of the entire gas load. True, our weather is somewhat warmer than the average year around. Boston would seem to offer nearly the opposite extreme. There, where househeating is 72% of the annual average residential gas load, the Servel air conditioner utilizes 90% of the gas consumed, with 18% used in summer cooling. That 18% is nearly twice as much as the range, refrigerator, and the water heater use the year around!

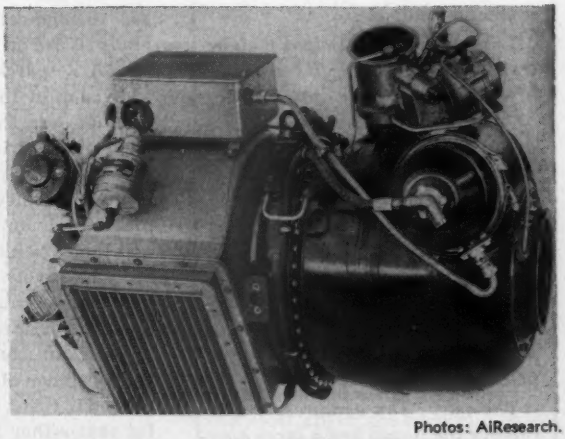
Sell Air Conditioners

"So it would seem that if these three commonplace household uses of gas are worth promoting and selling, the air conditioner should be worth it too, though the market be not so large."

Mr. Smith goes on to explain: "In Washington, D. C., the cooling load



One of the gas turbine-driven compressors which was studied for use in gas air conditioners. This unit is currently used in aircraft, and any adaptations for domestic air conditioning use would be considerably smaller. Efficiency, also, would have to be increased.



Photos: AiResearch.

The design of this aircraft gas-driven compressor was also studied. This prime mover is also in limited production for the government, and its unit cost is very high. Production for air conditioners is doubtful until the existence of a market is proven to the manufacturers.

of the Servel unit is 26.5% of the total annual average consumption for all household gas uses, and again more than twice as much as the refrigerator, range, and the water heater. In the Pittsburgh area, the cooling load is 22.2%; in Kansas City, 27.6%; in Cincinnati, 25%; in Chicago, 19.6%; and in Los Angeles, the annual average use for cooling is 54.4% of the entire household use of gas—more than house heating and the other three put together!"

Primary parts of the currently manufactured model are a cast iron generator, a non-ferrous steam heating coil, an absorption refrigeration and dehumidification system, a filter section, and a centrifugal blower for distributing conditioned air. Steam is used in winter as a heating medium, and in summer as a source of energy for operating the absorption refrigeration cycle. A gas flame supplies the heat to generate steam.

Steam at atmospheric pressure is developed in the steam generator, and is delivered by a heating coil over which air is forced by the blower. The steam condenses and the air is warmed in the process. Condensate returns to the steam generator by gravity. After it is heated, the air passes through a humidifier section consisting of a vertical bank of shallow trays, which are automatically supplied with water. Water from these trays is evaporated into the air, thus adding moisture. The air is thoroughly filtered upon entering the unit before it is either heated or humidified, and following these operations the cleaned, warm, humidified air is delivered by the blower to the spaces being conditioned.

In summer, steam from the same generator is delivered at atmospheric pressure to the absorption refrigeration unit which produces the refrigeration effect in the cooling coil over which the air is forced by the blower. The air is cooled and humidified as it passes through the cold coil. The refrigeration unit is hermetically sealed and contains a weak solution of salt and water. The salt, lithium bromide, acts as the absorbent, and water as the refrigerant. Circulation of the fluids in the system is accomplished by difference in temperature and height of liquid columns, with no moving parts. The unit operates under a high vacuum at all times.

Whether or not Servel plans to go into gas-driven compressor units remains to be seen. Present indications give these latter a slight efficiency edge over the absorption system for domestic air conditioning, and to maintain its competitive position in the gas air conditioning market, the company may have to join those who advocate the gas engine.

With the advent of this new system of gas air conditioning, gas industry men started searching for an efficient gas engine. The natural people to contact were the manufacturers of gas turbine-driven compressors already in use on aircraft. One of these was AiResearch Manufacturing Co., a division of the Garrett Corp., and another was the Solar Aircraft Co. Both of the prime movers manufactured by these companies are now in limited production for the government. Their unit costs are very high, and their operating ratios are admittedly relatively inefficient. Considerable engineering work is required to make them adaptable for use in gas all-year air conditioners, and until the existence of a sizeable market is proved to them, it is somewhat doubtful that either Solar or AiResearch will proceed with production of models designed for the air conditioning field.

Some of the necessary interest by gas company officials in this type of prime mover has already been shown. AiResearch has been contacted by executives of at least two of the nation's largest gas utilities. Engineers of the company are already investigating the design problems, two of the foremost being cost and sound muffling. Available information indicates that this company has taken a quick look at the market, but has concluded that the inefficiencies of today's aircraft models would appear to rule out their adaptability to air conditioning uses.

No doubt there are other companies beside Solar and AiResearch that are working on turbine-driven compressors for aircraft applications. Always bearing in mind the precariousness of having to be dependent primarily upon the government for the bulk of their contracts, they should be receptive to the idea of producing power units for gas-fired all-year air conditioners. But they must first be convinced that here is a real mass market. A half-million air conditioners per year—at the right price both as to investment and operation—is not an impossible goal. ■

Correction

In the first paragraph of "How to Figure Vapor Savings When Unloading Tank Cars," by Lawrence Smith, which appeared in the June issue on pages 33-35, a portion was inadvertently left out. Following is the first paragraph as it should read:

Liquefied petroleum gas may be transferred mechanically in either of two ways: with a liquid pump or with a vapor compressor. The pump will move liquid only, and will not remove the vapor content from a tank. The compressor will remove the liquid and a large part of the vapor content from a tank, but will not develop the high pressures required for the fast filling of small tanks. Therefore, in many plants, both a pump and a compressor are required.

The part "The compressor will remove the liquid and a large part of the vapor content from a tank," was omitted, which changed the meaning of the paragraph.

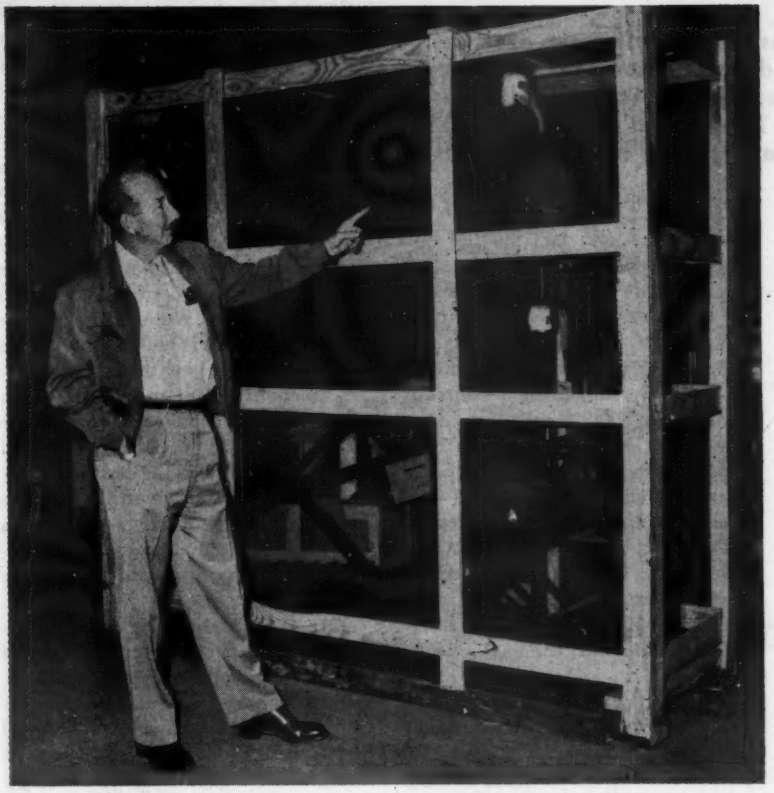
Coming . . . Next Month

Part I in a two-part series by Lawrence Smith on unloading tank cars with liquid pumps will discuss the matter of "Getting the Syphon Started," emphasizing the importance of using the proper method and discussing three methods that may be used.

LPG keeps the fish warm . . . at the fabulous new Marineland acquarium at Palos Verdes, Calif. . . . and keeps the patrons warm as well. It cooks 55 kinds of fish . . . and burns up the refuse.

The state of Oregon is a confirmed LPG user . . . as are the county of Baker and several communities that have become boosters for the fuel since discarding kerosene as a fuel for highway tar-melting uses.

Two series, temporarily interrupted this month, will reappear in BPN in the August issue: The series on "How to Plan Successful Advertising," which goes into Part 3, and the highly popular "Know Your Industrial Markets."



Leslie Scott of Valesco Inc. in Visalia, Calif., explains the function of various parts of a 25-ton air conditioning unit. This model is used primarily for restaurants and theaters.

Year-Round Air Conditioning Helps Balance Valesco's Winter-Summer Load

By Harold C. Hood
Field Editor

HOW can LPG dealers most effectively balance their winter-summer loads? "By pushing the sale of year-round air conditioning units" answers Leslie O. Scott of Valesco Inc., Visalia, Calif. "In many areas, as in ours, homes equipped with such units consume as much gas for summer cooling as for heating in the winter. Too few LPG dealers are aware of the full possibilities that gas air conditioning offers them as a means of maintaining a balanced summer and winter sales load."

Mr. Scott is the Servel distributor for the section of California bounded on the north by the Oregon border and on the south by the Kern county line. To date, most of his installations are in the area of the San Joaquin and Sacramento valleys. Before taking over this territory for Servel two years ago, he had completed an 18-years period of service with Southern California Gas Co., spending the last few years as sales manager of the Visalia area, so he was in an ideal position to understand many of the problems associated with gas air conditioning in this section.

THE ALL-YEAR LOAD

Because of the complexities involved in hooking up air conditioning units and installing ducting, Mr. Scott's dealers are all sheetmetal and plumbing men. California law states that anyone installing such a unit must have an air conditioning contractor's license. Therefore, companies selling appliances in connection with their gas business which do not have a licensed air conditioning man are not allowed to carry air conditioning equipment or sell on a commission basis. However, several LPG dealers, appreciating the advantages to be realized through increased sales of air conditioners, submit leads to Mr. Scott and are instrumental in closing many sales. A combined effort on the part of men involved in the sale of air conditioning units and LPG has proven advantageous to both groups.

Air conditioners most commonly in use are 2-, 3- and 5-ton units. Most of the homes being built today are of the size that requires 3-ton models, but the biggest seller is the 5-ton unit. Owners of larger homes are still the best prospects, and much work has to be done in educating residents of smaller homes to the advantages of the year-round airconditioner.

The term "ton," used in designating the size of an air conditioning units, refers to refrigeration capacity of the model. A 1-ton unit is capable of producing the amount of refrigeration necessary to freeze 1 ton of ice in 24 hours. Twelve thousand Btu per hour equals one standard ton of refrigeration.

A licensed mechanical engineer himself, Mr. Scott often goes to homes of his dealers' prospects and helps make surveys of heat loss which may be expected in a 24-hour period. These surveys take into consideration the area of glass, and the dimensions and materials of the walls and roof. These are carefully calculated and translated into Btu-per-hr heat loss. Calculations for air conditioning are more complicated than for househeating because a sunlight

Although at present owners of large homes are the best prospects for air conditioning sales, there is a market among owners of small homes for the 3-ton unit. Much work needs to be done to educate small home residents to the advantages of the year-round air conditioner.

gain factor must be considered as as well as heat transfer. Installation of the correct unit depends upon an accurate calculation of the heat loss. The American Society of Heating & Ventilating Engineers has compiled tables to aid air conditioning dealers in their calculations.

Reduce Temperature

In figuring the heat loss of houses, Mr. Scott's dealers work on the basis of reducing the temperature from 105° to 80° or over a range of 25°. This of course may be altered to fit any particular installation.

LPG in the Visalia area costs the customer 12 cents per gal., providing he has storage facilities for 500 gal. or more. A highly competitive situation exists in the area, and several dealers, in order to get the gas account of a home owner, will offer the tank at cost or will install it for nothing on a loan basis. Even though electricity sells for only slightly more than 1 cent per kwh, air conditioning with gas is more economical. Air conditioning with LPG in the area costs about $100; half of this is spent in cooling the home in the summer and the other half in heating it in the winter.

Most of Mr. Scott's air conditioning units are sold to homes already using other LPG appliances, or to new homes being built which have plans for other LPG installations.

Lower fuel cost is not the only advantage of gas air conditioning. Operation is quieter than with electric models, because there are no moving parts except the fan. This fact also accounts for less maintenance trouble with the gas units.

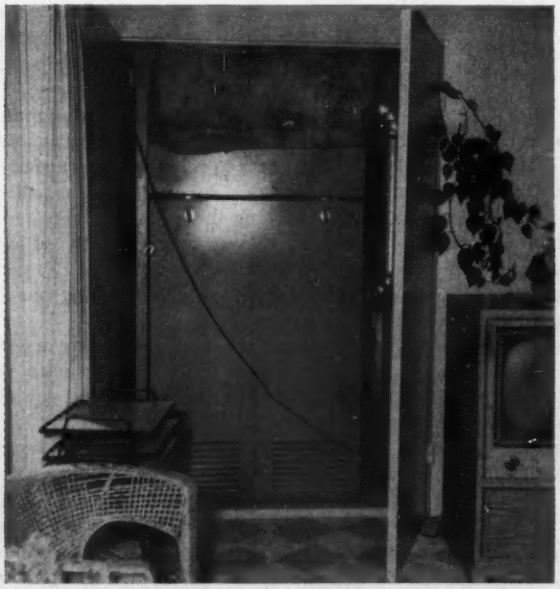
Reliable Gas Units

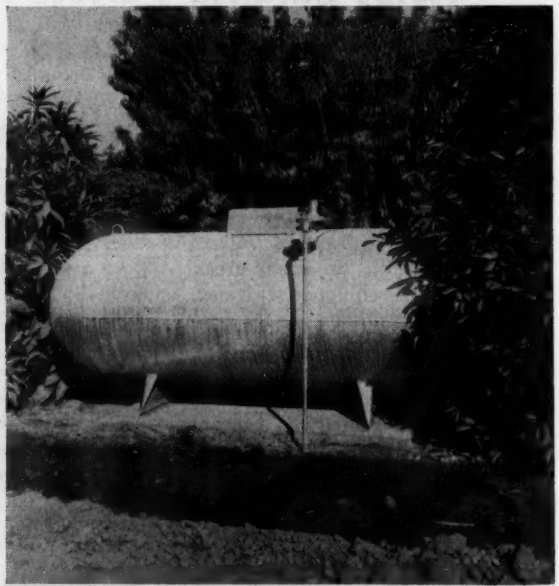
Several of Mr. Scott's dealers handle both electrical and gas air conditioners. Most of these report that there is less mechanical trouble with the gas than with the electrical units. Air conditioning dealers generally handle their own service calls, factory men not being required for the average repair job. However, Mr. Scott and factory representatives do help in the training of dealers in the mechanical service aspects of the air conditioning units.

Individual dealers do their own advertising, but Mr. Scott cooperates by paying a portion of their costs. The proportion of the costs which he bears depends upon the number of sales. Mr. Scott encourages them to advertise as much as possible, and the media generally used are the local newspapers and radio. Some dealers have used direct mail in their sales promotion efforts with some success.

At county fairs in the area, Mr. Scott sets up models of his Servel air conditioners and demonstrates them. To date, however, the best advertising that has been given the units is the word passed along to neighbors by satisfied customers. They constitute his most satisfactory public relations agents.

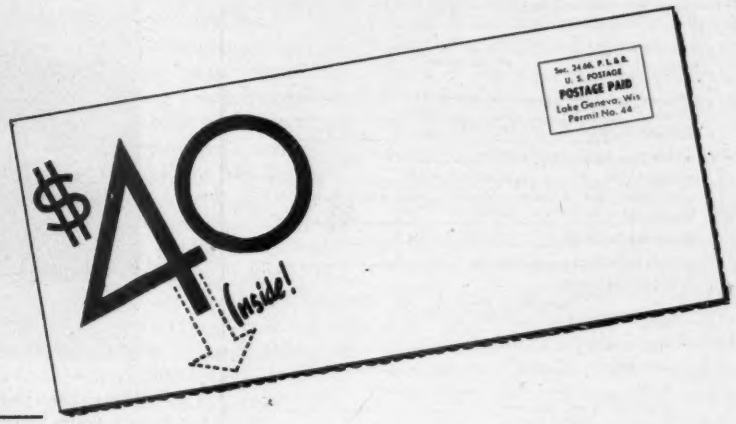
Mr. Scott feels that a collective effort on the part of all LPG dealers in an area to put across their air conditioning message would be more effective than the present method of competing with each other. He points out, from his experience with the gas utility, the effectiveness of the combined efforts of a group of gas men. He believes that if LPG dealers would group together and support wider, farther-reaching advertising, their money would be better spent than at present. ■





Left: One of Valesco's customers, Russell Davis, installed this 3-ton all year around air conditioner in his home two years ago. Cost of L.P. gas for the unit has been considerably less than was originally estimated. Right: This 500-gal. LPG tank supplies the air conditioner at the Davis home. Completely hidden in an orange grove, it cannot be seen from the house.

Low morning and evening temperatures made southern Wisconsin resort homes chilly until one progressive LPG operator decided to do something about it—and take the sting out of a heavy winter heating load at the same time!



"Chill Chasers" Chase Winter Peak Bogies Out of Wisconsin Southern System

By William W. Clark
Editorial Director

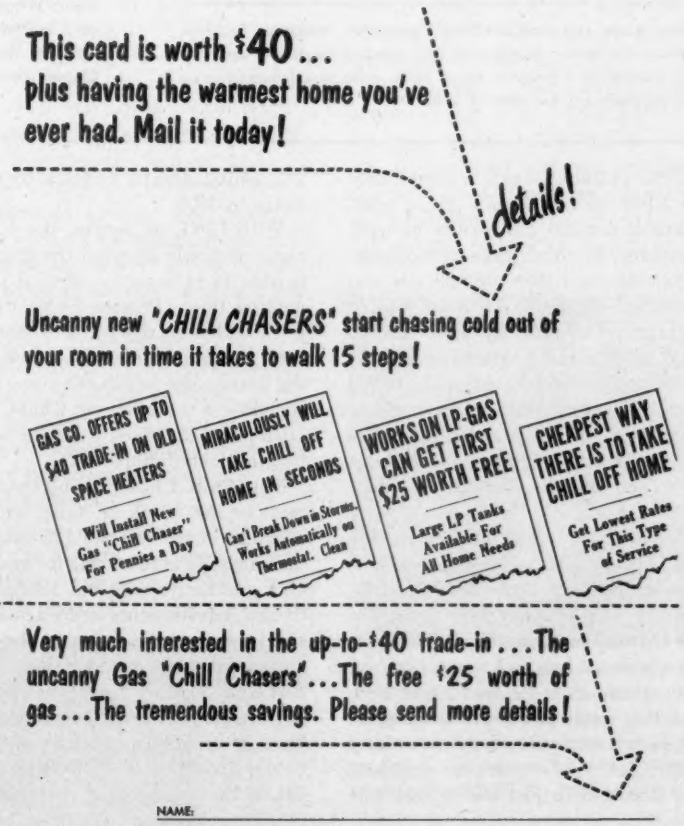
HOW about *summer-seasonal* heating with LPG?

It's an obvious answer to a tipsy load picture—if it can be done.

Up around the lake country of southern Wisconsin, it is being done; with most customers on LPG for winter heating, the sizeable summer resort trade has been capitalized upon by the expenditure of a major effort to sell resort owners on the need for a fuel that would "take the chill off" their rental properties in the summer.

"No matter how hot it gets in the summertime, the early morning and evening hours are chilly," declares E. P. Mink, vice president in charge of sales for Wisconsin Southern Gas Co. Inc., who has successfully fathered the company's "Chill Chasers" campaign. By making a determined effort to spread-eagle this market, Wisconsin Southern has been able to continue its development of the heavier winter heating market. And its saturation in this field is highly impressive, to say the very least.

The company, which operates in the towns of Burlington, Lake Geneva, Delavan, and Twin Lakes, as


This card is worth $40...
plus having the warmest home you've ever had. Mail it today!
details!
Uncanny new "CHILL CHASERS" start chasing cold out of your room in time it takes to walk 15 steps!
GAS CO. OFFERS UP TO $40 TRADE-IN ON OLD SPACE HEATERS
Will Install New Gas "Chill Chaser" For Pennies a Day
MIRACULOUSLY WILL TAKE CHILL OFF HOME IN SECONDS
Can't Break Down in Storms. Works Automatically on Thermostat. Clean
WORKS ON LP-GAS CAN GET FIRST $25 WORTH FREE
Large LP Tanks Available For All Home Needs
CHEAPEST WAY THERE IS TO TAKE CHILL OFF HOME
Get Lowest Rates For This Type of Service
Very much interested in the up-to-$40 trade-in...The uncanny Gas "Chill Chasers"...The free $25 worth of gas...The tremendous savings. Please send more details!
NAME:
ADDRESS:

Promotion of the Chill Chasers campaign was launched with the mailing of a double-fold cardboard mailing piece bearing on the outside the teasing inscription, "$40 Inside!" The inside of the brochure mentioned a $40 trade-in value on old space heaters and contained a coupon to be mailed.

NEW AREA SURVEY

NAME _____ DATE _____

ADDRESS _____ HOMEOWNER _____

POST OFFICE _____ RENTER _____

LOT NUMBER _____ BLOCK NUMBER _____ ADDITION _____

SEASONAL RESIDENT _____ ALL YEAR RESIDENT _____

IF NOT PROPERTY OWNER; OR PERMANENT RESIDENCE IS ELSEWHERE INDICATE BELOW:

PROPERTY OWNER _____

PERMANENT MAILING ADDRESS _____

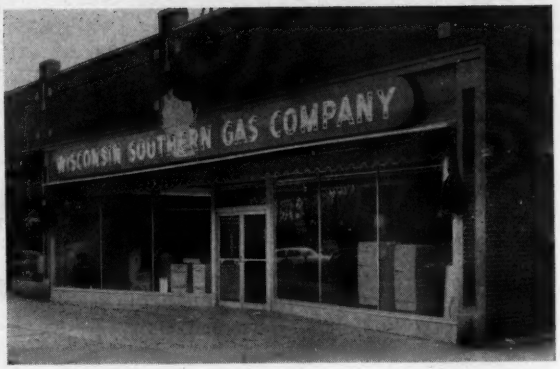
_____

1. Fuels used at present?

	Bottle Gas	Electricity	Oil	Coal
Cooking	____	____	____	____
Water Heating	____	____	____	____
Refrigeration	____	____	____	____
Heating	____	____	____	____

2. If bottle gas is used, trade name? _____
3. How many persons in family? _____
4. How many rooms in home? _____
5. Will you be interested in using GAS? Yes ____ No ____
6. What uses will you make of GAS?
   Cooking _____ Water Heating _____ Refrigeration _____ Heating _____
   Clothes Drying _____ Incineration _____
7. If bottle gas is used, do you want to convert present equipment? _____
   Install new equipment? _____
8. Remarks:

Above: Along with the Chill Chaser promotion, Wisconsin Southern conducted a survey of potential LPG seasonal heating areas. Two boys worked on a house-to-house basis, collecting information on fuel requirements and uses of LPG.



Above: Lake Geneva general offices and display room of Wisconsin Southern Gas Co. The firm has 10,000 domestic customers, 4400 of them using fuel for househeating.

Right: Wisconsin Southern's vice president in charge of sales, E. P. Mink, fathered the highly successful Chill Chasers campaign.

well as outlying areas, is not strictly an LPG operation, but has a good share of natural gas service as well. However, in either type of business, a heating load that numerically exceeds one-third of the total load is little short of amazing in a climate such as obtains in Wisconsin.

Wisconsin Southern, with 10,000 natural gas customers and a growing number of LPG customers, today has 4400 on househeating, of which about 25% are on the summer-seasonal heating basis.

Such promotional winners as the Chill Chasers drive have helped Wisconsin Southern build up its househeating load despite restrictions. On the natural gas side of the operation, the company has had restrictions on new additions to its load since 1946, and this past spring the backlog of requests for service had reached 1200. Yet, every year the company has managed to just about wipe out the deficit and it expects to do so again in 1955.

With LPG, of course, the load is restricted only by what the company is able to pick up to offset it in the summertime. Winter heating has been added in the form of 500- and 1000-gal. bulk tanks. Summer heating tanks come in 125-gal. sizes. Thus, it takes a number of Chill-Chaser customers to offset a single winter heating installation.

The Chill Chaser program was built on the "Bulk D" tank, which is a catchy name for the 125-gal. tank the company is featuring for seasonal and smaller year-round loads. Customer requirements are carefully sized: year-round users in the Bulk D class must use no more than 25,000-Btu input heating equipment to qualify. Seasonal heating customers must have heating equipment sized between 20,000- and 75,000-Btu input. While the year-round customers on Bulk D are on a bi-monthly billing schedule, with minimum billings and special penalties for refusals to take gas on regular schedules, summer seasonal customers are served bi-monthly only through the months of April to November. The $2.50 minimum billing charge is made for them as well as for the year-round customers, but it is, of course, waived during the other four months.

The minimum delivery charge pays for all LPG delivered up to 10 gal. The next 20 gal. is billed at a flat 26 cents (25 cents net in 30 days), with increasing quantities bringing the price down to a minimum charge of 21 and 20 cents (the latter net) for deliveries in excess of 50 gal.

The relative price of this special service can be ascertained by a comparison with the charges for large bulk tank storage. One thousand-gal.-plus storage facilities earn rates as low as 15 cents gross and 14 cents net during the regular season, and 13 and 12 for off-peak deliveries. Two hundred-gal. storage earns rates ranging from 17 cents to 14 cents on similar schedules. For metered service on 150- and 300-lb tanks, on the other hand, a bi-monthly charge of

SUMMER HEATING LOAD

$1.10 gross ($1 net) is made, with the first 600 cu ft charged at 85 cents gross, and excess usage being billed at sliding rates.

Foundation for the Chill Chaser promotion was two customer bonuses —a big, special trade-in offer and a gas giveaway. During the period of the drive—June 15 to Sept. 15—each new LPG user added to the system using bulk (non-metered) service received free of charge the first tankload of gas. This was the equivalent of a gift of $25 to the Bulk D user, $32 to 250-gal. tank customer, $60 to the customer with a 500-gal. tank, and $112 to those having 1000 gal. or more of storage capacity.

Add Summer Customers

Although the free fill was extended to all types of LPG users, the big drive was to add summer customers. To be eligible for the seasonal plan, the LPG user had to purchase space heating equipment. But as an inducement, he was offered up to $40 for the old oil, coal, or wood unit in trade on a Coleman wall heater or floor furnace or a Moore space heater. Trade-ins were scaled on the basis of condition and model purchased. The company felt it could afford to offer as much as 50% of the maximum trade-in price for junkers; anything on which more than 50% was allowed had to be saleable. Maximum figures were:

For Coleman 47 AXG floor furnaces, Coleman 65-66 UN wall heaters, and Moore 1420-1430 space heaters, $20.

For 48XG floor furnaces, 67-68 UN wall heaters, and 1440-1450 space heaters, $30.

For 49XG floor furnaces, 64-69 UN wall heaters, 1465-1485 space heaters, $40.

Promotion of the Chill Chasers drive was launched with the mailing of a double-fold cardboard mailing piece bearing on its face the teasing inscription, "$40 inside!" "This card is worth $40—plus one of the snuggest summers you've ever had" was the way it read on the inside. "Mail it today." A total of 7500 cards were sent out during the week of June 13 to both natural gas and LPG seasonal heating prospects. This was the time of year when they would be opening their summer homes. A second mailing of 7500 went out in the middle of July, to strike when practically every summer home was occupied.

Concurrently, the company conducted a survey of the potential LPG seasonal heating areas, using two boys just out of high school to work on a house-to-house basis, collecting information about the fuel requirements and uses of each house visited. To the user, the visit was an institutional gesture; the boys were visiting the home to educate them on LPG and to act as goodwill ambassadors. Thoroughly indoctrinated before they started on their rounds, the boys were able to explain in general terms the uses and advantages of LPG. They carried booklets with them that helped put across the story.

To Wisconsin Southern, the effort was an excellent means of obtaining vitally needed information about customers in untapped areas. The contacts produced data on types of fuel used for the various domestic applications, number of persons in the family, number of rooms in the home, as well as intentions as regarded possible conversions to LPG or new equipment purchases.

The survey lasted for two months, June 15 through Aug. 15. Once they had accumulated a little experience, the boys were able to average 45 to 50 contacts per day between them.

Follow-ups were at the discretion of the company management. The hottest prospects were given immediate treatment. Others were followed up as occasion and circumstances warranted. Some prospects were "backlogged" into a file for follow-up during slack selling periods.

As further support, the company set up complete heating displays for each of its offices, hooked up for live demonstrations.

Quotas for each salesman were set up on the basis of past records. Special prizes consisting of $14.95 wool robes in plastic carrying cases were given to the first two men to achieve 50% of quota, the first two to reach 100% of quota, and the two salesmen selling the greatest percentage of their quota during the campaign.

Perhaps the basic reason why Wisconsin Southern has enjoyed outstanding sales success lies in its execution of the "splash-over" theory. As Mr. Mink pointed out in his instructions to his salesmen in preparing for the Chill Chaser drive, "a lot of the broadsides we send out for this campaign will 'splash over' into the rural area and will excite interest in our Bulk D systems, both for farm homes and for milkhouse heating and water heating service."

"Splash Over"

This same "splash over" worked to advantage in the combined natural gas and LPG operations. While the company's entry into the LPG field was by design and not accident, it was nevertheless more truly the result of circumstance.

The company was operating a manufactured gas system long before it entertained any intentions of going into the propane business. In 1946 it was rolling along with manufactured gas, produced at its properties in Burlington. Its total capitalization

The Chill Chaser campaign was built on the "Bulk D" tank, which is a 125-gal. tank that the company features for seasonal and smaller year-round loads. Customers can qualify for Bulk D the year around only if they use no more than 25,000 Btu input equipment.

This typical tank was installed by Wisconsin Southern for its large volume of customers on winter heating. The company has operations in four towns and their outlying areas.

Wisconsin Southern's Flame of Freedom campaign was accompanied by a "Complete the Headline" contest, which acted as an interest-arouser and a door-opener. The idea was to complete in five words or less the headline "A Gre....." The brochure describing the contest also described the freedom from work, worry, and expense that is possible with gas.

was less than a half-million. Its gas customers totaled 4593, its gas plant's daily capacity was 357 mcf of natural gas, equivalent of 530 Btu water gas. In that year natural gas came into the picture through the long line of Natural Gas Pipeline Co. of America. As so many other utilities have done, before and since, Wisconsin Southern junked its manufactured gas plant in favor of an LPG peak-shave system.

LPG Operation

Within two years, the company saw the wisdom of extending the usefulness of its sizeable storage system to an LPG operation. Most of the year, the full tanks were sitting idle. Here was an excellent opportunity to branch out. So in May of 1948, operations began, and in the first year the company developed 153 bottled gas customers. It was also filling bottles for seven or eight dealers. Its total sales that year were 25,150 gal.

The first direct-consumer sales were made on a metered-bottle setup, but with the onset of househeating along about 1950, the company began going into bulk. Sales continued to increase, along with saturation. In 1950, 348 customers were using 157,386 gal. of fuel; in 1953, 615 customers bought 684,862 gal. By 1953, the company was netting a tidy $15,405 on a gross revenue of $103,988.

Meanwhile, on natural gas the company had more than doubled its customers to a total of 9308 in 1953. And in that year, its total heating saturation reached 37.5%. Capitalization soared to $2.7 million, aided by a corporate reorganization which brought in more capital.

The spillover in sales efforts has carried the company into other sales campaigns. Sometimes one campaign starts on the heels of another. Mr. Mink doesn't believe in wasting a single precious moment that might be devoted to active selling. Leads developed in a campaign carried on the previous winter had been followed up during the Chill Chaser campaign. Chill Chaser leads that had failed to buy during the summer months were an untapped source when the company swung into its big "Flame of Freedom" drive last January.

This drive was laid out as a means of adding new customers, increasing saturation among existing customers, upgrading the uses by existing customers, and increasing average revenue per gallon by selling more services on the Bulk D rate for domestic and farm uses. It was also intended as a pick-me-up to inject new life into a normally laggard merchandise selling season and to clean out inventory for a big spring push.

"Four Gas Flames"

"Flame of Freedom" was more than simply a drive for additional househeating load. This campaign featured the "Four Gas Flames"—water heating, cooking, heating, and clothes drying. "Freedom," as used in this context, stood for freedom freedom from work, worry, and expense.

The survey idea was trotted out again, but this time in new dress. It became an "evaluation survey," conducted by a company expert.

"We were attempting to set up new standards of customer contact service by sales personnel to enable them to use the training and experience they had received to properly analyze each customer's requirements and offer satisfactory recommendations," says Mr. Mink, in describing the survey methods. Complete information was obtained on fuels used for each service, average monthly bills and total annual costs, condition of equipment, make, model, and age, etc.

On the basis of this information, the representative was able to fill out a "recommendation report" for the customer, listing suggested equipment improvements and estimating savings possible with new gas-fired

appliances. Trade-in values of present equipment were also estimated. In summarizing the elements involved in an upgrading program, the report showed the customer what the total cost would be, what annual savings in fuel costs could be anticipated, and what future replacements were to be recommended, along with anticipated savings therefrom.

Demonstrations Scheduled

As a follow-up on these activities, demonstrations were scheduled at the customers' home and at the store.

Special customer incentives were devised. For LPG service, new Bulk D systems were offered at a cost of $2 down and $2 per month. The lease on this equipment was reduced from $99.50 to $49.50 for the duration of the campaign. Regular installation work and a free supply of copper tubing in lengths up to 30 ft for appliance connections were included in the price.

Targets were not only users of competitive fuels, but the company's own bottled gas customers as well, which Wisconsin Southern intended to upgrade, with new appliances, to the Bulk D class. And as an additional talking point, those who agreed to move up to Bulk D were assured that when, in the future when the lease was entirely paid, they would be given full credit for the system on the installation of a larger-size tank suitable for a complete home gas service.

To move merchandise, 30-day free home trials were given; no down-payment, 36-months-to-pay terms were given at 5% discount; and healthy trade-ins based on the National Blue Book of Used Appliances were offered.

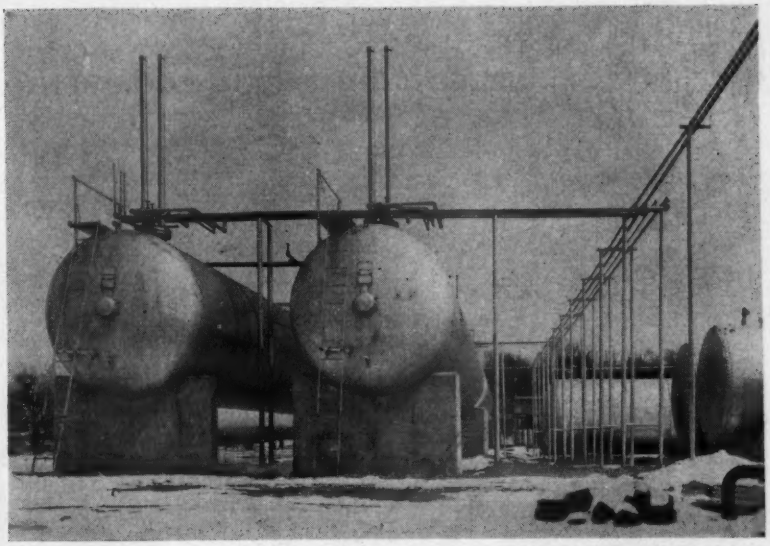
"Complete the Headline"

As a door-opener and interest-arouser, a "Complete the Headline" contest was also run in conjunction with the promotion. Entry blanks for the contest were made available through the representatives who made the evaluation surveys, as well as through local theaters and the offices of the gas company. The idea was to complete in five words or less the headline "A Gre . . . . " First prize was a gas clothes dryer; three steak knife sets and 48 local theater tickets were also given away.

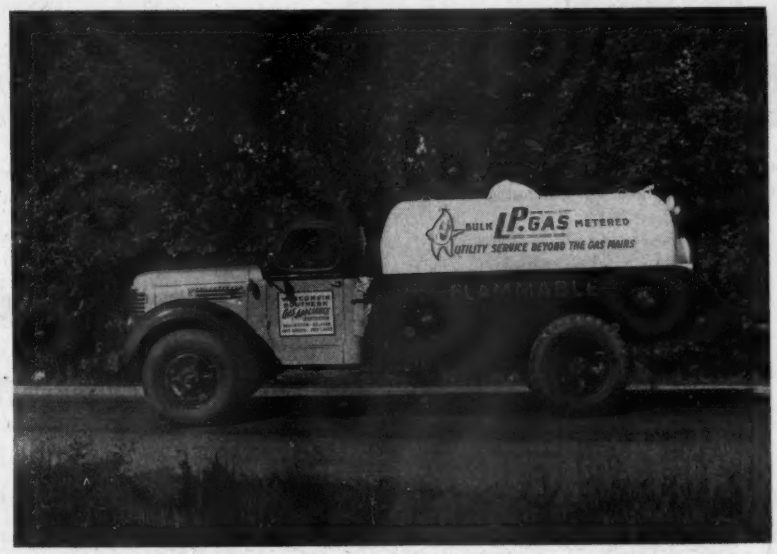
In support of the program, 20,000 brochures carrying the message of the headline contest and the "Flame of Freedom" drive went out in two separate mailings, one in early January, the other late in February. Theater trailer advertising was also used in the four theaters in the area, backed up by lobby advertising and displays and the entry blanks for the contest. Live floor demonstrations of laundry and kitchen equipment were set up on company sales floors. Car cards and newspaper advertising also plugged the drive.

The campaign wound up on March 31. The company's sales goals were four-fold; two of them included an increase in natural gas customers by 150 and LPG customers by 100.

The drive went over the top—159 new natural gas customers, 124 new LPG users. This count was made just as the campaign was winding up. Mr. Mink and his men were already getting ready for the next one—the Spring "Matchless Companions" sale. It was to start the next day. ■



Wisconsin Southern maintains bulk storage in Burlington. Before entering the LPG business, the firm operated a manufactured gas system. With the coming of natural gas, Wisconsin Southern junked its manufactured gas in favor of an LPG peak-shave system.



One of Wisconsin Southern's delivery trucks. Company began LPG business in May of 1948 and in the first year developed 153 bottled gas customers.

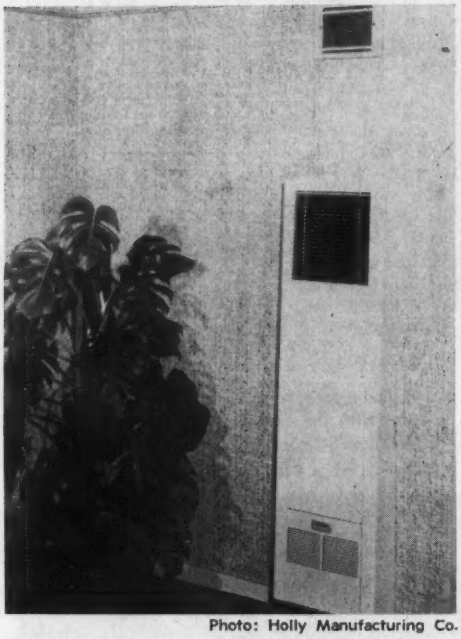


Photo: Holly Manufacturing Co.

No extra floor space is required by the recessed wall heater, which blends well with the rest of the room.

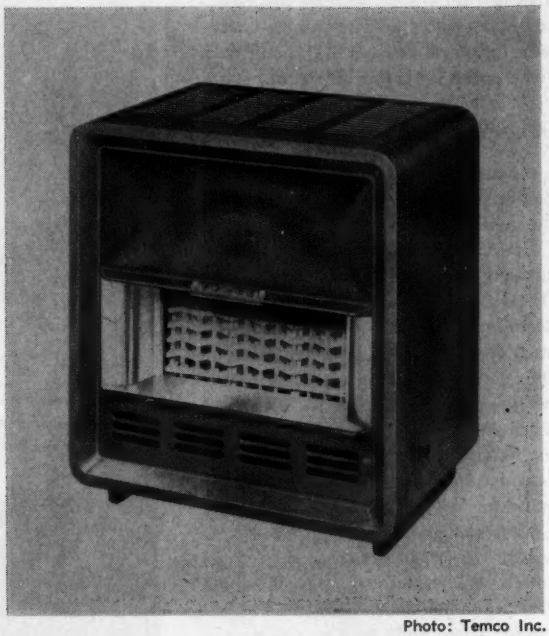


Photo: Temco Inc.

A forced air circulating heater has ceramic radiants which radiate heat into the room. The unit also uses a fan to circulate warm air.

Climate, Budget, House Construction Determine Heating Equipment Used

By Harold C. Hood
Field Editor

THERE is a gas heating unit designed to fill almost any existing requirement. The salesman of heating equipment does not have to revert to equipment using another fuel when faced with an unusual heating problem.

Climate, house construction, the budget, and several other factors enter into the selection of a heating system. From California to Florida, in regions where the weather is relatively mild, radiant wall heaters generally suffice to maintain comfortable temperatures in the home, whereas in the colder sections to the north, central hot water and warm air models have proven more suitable.

Because each type of heating unit is designed to fill a specific requirement, it is impossible to make the generalization that one type of heater is necessarily better than another.

The least complex type is the direct-fired space heater. This is used to heat one or two rooms, and is particularly popular throughout the south where there are no severe cold spells.

The simplest form of direct-fired space heater is the radiant heater, an example of which is the famous old Humphrey Radiantfires of the General Gas Light Co. These heaters have been in use for many years and are designed to give a quick heat for short periods of time. They are frequently used when the primary source of heat is not in use, yet some heat is desired.

Element radiant heaters have a large bank of ceramic radiants through which the ignited gas travels. No provision (other than gravity) is made for the circulation of warm air.

This type of heater is available in many sizes and shapes, and may be vented or not depending upon conditions under which the heater is used. Many of these heaters are found in older homes, and the number being installed in modern homes is decreasing.

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The Sid Richardson Gasoline Co. can furnish you a supply contract tailor-made to your desire, anywhere between all spot purchases with you taking all the risk and a contract by which we guarantee your total requirements at assured competitive prices.

Let us tell you about our new type of delivery agreement and our record of delivery performance.

Sid Richardson
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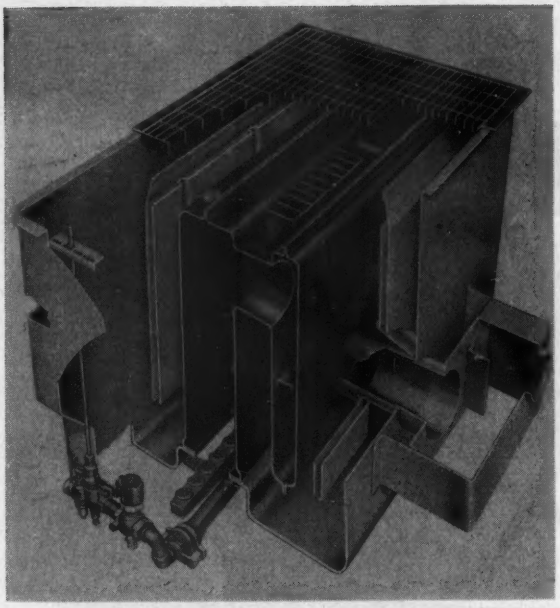

Cold air is drawn through the outer area of this register into the floor furnace below. Warm air rises from the center section where the gas burner is located.

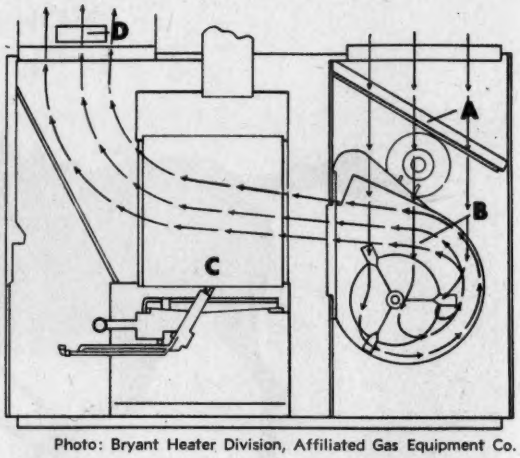

Photo: Bryant Heater Division, Affiliated Gas Equipment Co.

Arrows show the path that air follows in being heated in a modern forced warm-air central heating system. Cool air passes into the furnace through a large area filter (A) where dirt and dust are removed. Then a high-capacity blower (B) pushes the air through the heating element (C) and humidifier (D; and on to the rooms of the house.

Where the element radiant heater was widely used in adding gas heat to older houses, the trend in new homes seems to be toward recessed-wall heaters. These have gained in popularity greatly since World War II, and are found in many modern motels and apartments. To date, Florida and California have provided the largest market for these units, but their popularity is rapidly spreading throughout the country.

Recessed-wall heaters require no floor space as do other types of radiant room heaters. They are efficient, quickly adjusted, easy to clean, and blend in with the rest of the room. Many sizes and capacities are available from manufacturers, a few of these are: Holly Manufacturing Co., Day & Night Division of Affiliated Gas Equipment Co., and Temco Inc.

Another advantage of recessed-wall heaters is that, unlike some other types of radiant heaters, they are away from bed spreads, drapes, furniture, and other combustibles which might constitute fire hazards.

The second category of direct-fired heaters is the circulating heater, which may be of the gravity distribution type or the forced-air variety. Depending upon gravity for air circulation, the first type utilizes both radiation and convection for heating the room. The burners are usually mounted at the bottom of the heater and a polished metal baffle above reflects heat from the burners out onto the floor of the room. Air is drawn in at the bottom of the heater, passes through heat exchange chambers above the burners, and is forced into the room by the draft of the appliance.

In the forced-air models, a slow speed fan forces air over the heat exchangers above the burners and out into the space to be heated. Adjustable horizontal louvers are usually provided on this type of heater so that the amount of warm air entering the room may be controlled.

Radiators which generate their own steam or heat their own hot water are also classed as direct-fired space heaters. A long burner under an integrated water reservoir or boiler is controlled by a valve which is actuated by a steam-pressure mechanism. Steam, which fills the radiator, causes a large radiant surface to be produced. This unit also depends upon convection and radiation for getting the warmth into the space being heated.

Combination radiant and forced-circulation heaters have gained in popularity during the past few years. These units generally have banks of ceramic radiants to throw heat toward the front, and make use of heat exchanger chambers to impart heat to air which is forced by a fan into the room. They circulate warm air to every corner of the room, thereby creating even comfort throughout the room.

Floor furnaces fall in a category between direct-fired space heaters and central-heating furnaces. They are not located within the space being heated, nor do they heat all rooms from a central location.

The floor furnace, as its name implies, is located below the floor, and by means of one or more registers, heats one or two rooms. The furnace is located in the basement, or in a specially built pit which protects it from dirt and water. It is usually suspended from floor supports and is flush with the floor.

The single-register type of floor furnace has one register that serves to inlet cold air to the heater and outlet warm air produced. Within the rectangular casing which forms the outside walls of the register is another similarly shaped casing which reaches nearly to the bottom of the furnace. Cold air enters the unit by gravity through the outer periphery of the register, while warm air rises by convection through the center casing. A few models are supplied with fans which provide forced air circulation.

The dual register works on the same principle as the single register type but supplies heat through two

LP GAS

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DEPENDABLE ALWAYS . . .
FOR COOKING, HOT WATER,
HOME HEATING

NOW! You can afford
WARM FLOOR HEATING
in every room!
BUT WITHOUT COSTLY DIRT
COLLECTING PIPES AND REGISTERS
SIEGLER has TWO heatmakers working together on ONE fire
to put heat in every room in your home!
HEATMAKER No. 1
PATENTED
PLUS
EQUALS
PLUS HEATMAKER No. 2
Does 75% of the warm floor heating job.
Room air is pulled right through the fire inside
these 14 patented inner heat tubes!
Tropical Floor Heating

ORDINARY HEATERS cannot give you warm floor heating because they waste heat up the chimney and on the ceilings
NO INNER HEAT TUBES
PLUS NOTHING
EQUALS
DRAFTY COLD FLOORS

Siegler is not a space heater that wastes heat up the chimney and on the ceiling, forcing you to live in one or two rooms with cold floors.

Siegler is not a central heating plant with expensive installations!

SIEGLER is the revolutionary method of *WARM FLOOR HEATING* puts heat in every room BUT WITHOUT PIPES AND REGISTERS!

AND LOOK—don't let BTU Ratings confuse you!

There is BTU INPUT . . . there is BTU OUTPUT, but what keeps your family warm is BTU USEPUT . . . the working BTU'S that heat your home! In BTU USEPUT, Siegler OUTHEATS 'EM ALL! A 50,000 BTU Siegler gives more USABLE HEAT than much higher rated ordinary heaters. Any Siegler Heater you buy will give you much more USABLE HEAT than any other heater of comparable size.

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THE HEATER WITH THE PATENTED INNER HEAT TUBES
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Ask your dealer for a HOT DEMONSTRATION—*for full information write* SIEGLER—Centralia, Ill.

. . . write for details how a Siegler franchise helps build your gas load! The results are *amazing!*

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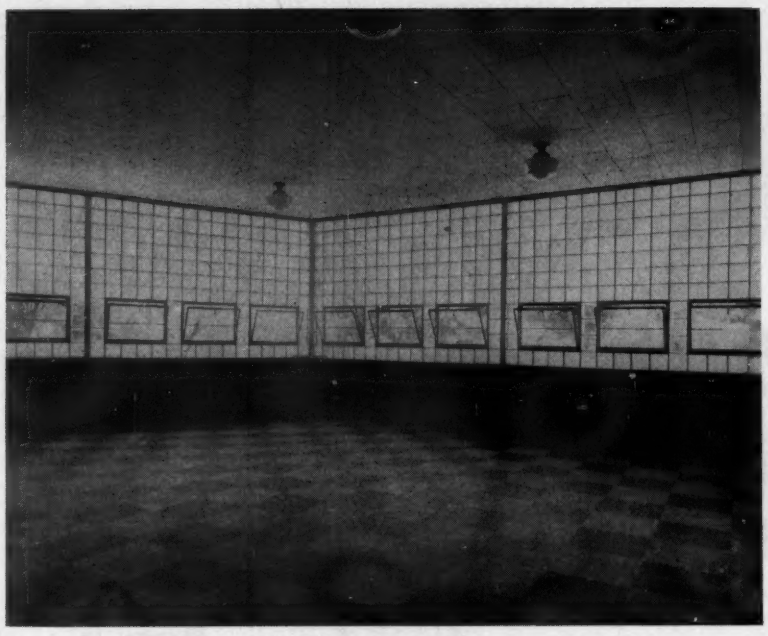
GENERAL OFFICES, CENTRALIA, ILLINOIS



Perimeter heating is becoming very popular in today's homes as well as in schools. The closed-in section below the bookcases is a warm air duct. Warm air enters the room through regularly spaced openings.

registers, usually located in adjoining rooms. Registers in this type of floor furnace are frequently mounted in the walls.

All floor furnaces are vented. Local codes and laws should be followed when installations are made.

Central Furnace

With central heating, gas combustion takes place within a central furnace or heater, and the heat is distributed to the spaces to be heated by various means. Most houses in the colder climates of the country are furnished with central heating.

Heat-carrying media, most commonly used in domestic installations, are air and water. Steam is occasionally used, although it is more practical for use in larger buildings.

Warm-air furnaces have the distinction of being the most commonly used central-heating units. Of these there are two types—gravity and forced-air models. The first depends upon the difference in volume, and hence on the difference in weight of warm and cold air for circulation. Inlet air, along with recirculated air, enters the plenum chamber of the furnace, is heated by a series of gas burners, and rises to room registers above through a network of sheet-metal ducts.

In the newly developed "perimeter" and "baseboard" heating systems, warm air is sometimes forced into the space to be heated from a long register or perforated duct that encircles the entire room. Advocates of this type of heating claim that more even heating throughout the room results from its use.

Forced-warm-air furnaces vary from the gravity furnaces in that they are equipped with blowers and do not depend upon convection for circulation. For this reason, they are not necessarily mounted below the rooms being heated, and horizantal and downhill ducting may be used if necessary.

Advantages of Warm-Air

Forced-warm-air furnaces have several advantages over their gravity circulated counterparts. For one thing, the furnace need not be centrally located, so may be placed in any convenient location within the home. Distribution piping can be smaller and there is more positive distribution of air. During the summer, cool basement air may be circulated through the same system to help cool the house.

Temperature in upstairs rooms of homes having warm-air furnaces is controlled by thermostat, and by opening and closing registers in each room. One of the primary advantages of warm-air systems is that properties of the air within the house may be more easily controlled than with other forms of central heating. The moisture content may be controlled by humidifier equipment at the furnace. Incoming air may be filtered, so that cleaning and heating utilizes the same ducting and circulation system.

Hot-water systems, commonly used in the northern half of the United States, operate in a manner similar to the warm-air furnace, but the heat conducting medium is water. Some systems are equipped with pumps which aid water circulation, but the majority depend upon temperature difference in the water. One advantage of the hot-water system is that less space is required, both for the furnace itself, and for the pipes that transmit the heat to rooms. Also, the noise associated with warm-air systems is not present.

Most commonly used heat exchangers in hot-water systems are metal radiators. These are generally mounted under windows to counteract cold air effects in that section of the room.

More Efficient

Radiant heating and baseboard heating are being installed in many new homes. Both of these systems do away with cumbersome radiators in the space being heated, and manufacturers of the equipment claim that it is more efficient than using radiators.

Radiant heating utilizes hot-water piping imbedded in the floor near its surface. As hot water is circulated through the pipes, the entire floor is warmed, and the air in the room is warmed in turn. Radiant heating is even and steady, and no one part of the room is warmer than another.

In baseboard systems, the hot water pipes are concealed behind the baseboard, and heat is transmitted through the baseboard into the room. Panel heating, with the exception of the location of the water pipes, is the same as baseboard heating. With all of these new forms of hot-water heating, the usual advantages of hot water-heating are present plus the fact that there is more room in the house for furniture, and there are no radiators to collect dirt. ■

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HOW TO USE THIS RULE
1 Find Overall Perimeter—set length of house (scale A) over width of house (scale B) and read perimeter in window above arrow (scale C).
2 Select Factor from Table I or II. For example, a 1-story house with average frame walls, insulated attic, without storm sash would be factor "h".
3 Set perimeter (scale X) under the factor selected (scale W). Directly above the outside design temperature (scale Z) find result in thousands of B.T.U. per hour (scale Y) representing heat loss of the house including a 10% safety factor.
NOTE: Outside Design Temperature for U.S.A. given on map printed on reverse side of rule.
USE THIS SIDE OF RULE FOR ONE-STORY HOUSES
USE OPPOSITE SIDE FOR TWO STORY HOUSES
Copyright 1946, The Coleman Company, Inc.
SCALE "A" LENGTH OF BUILDING—FT
SCALE "B" WIDTH OF BUILDING—FT
PERIMETER OF BUILDING BELOW
SCALE "C"
TABLE I
FACTORS FOR COORDINATION OF WALL CONSTRUCTION, INSULATION, AND USE OF STORM SASH
OUTSIDE WALL CONSTRUCTION
INSULATION IN ATTIC
STORM SASH AND DOORS
NONE
2" OR MORE
MASONRY—8 to 12" thick—solid brick, tile, stone or concrete block—inside surface plastered.
AVG. FRAME—Brick veneer or wood siding, building paper and wood sheathing on studs, with lath and plaster or wall board inside. (Also furred masonry)
FRAME WITH INSULATING BOARD—Same as average frame, but 1/2 to 1" insulating board used in place of wood or lath and/or plaster.
FRAME—HEAVILY INSULATED—Same as average frame but 2 to 4" blanket or fill insulation added.
SCALE "W" FACTOR TABLE I
SCALE "X" PERIMETER OF BUILDING
SCALE "Y" B.T.U. PER HR THOUSANDS
SCALE "Z" OUTSIDE TEMP.
+20° +10° 0° −10° −20° −30°
The COLEMAN COMPANY, Inc. Wichita 1, Philadelphia 8, Los Angeles 54, Toronto, Canada
LENGTH WIDTH
This calculator is based on single story building of double construction, with an average number of windows and doors. On two-story buildings figure each story separately and add 80% of the heating requirements for the upper story to the requirements for the lower story.
ZONE MAP
12 B.T.U.
10 B.T.U.
8 B.T.U.
6 B.T.U.
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How To Size Gas-Fired House Heating Equipment

By Harold C. Hood
Field Editor

The slide calculator shown above is used by the Coleman Co. for computing the output of heating units required by a single-story house. Heating engineers of Sears Roebuck & Co. use the "zone system" in the calculator at left.

EVEN the best gas heating equipment obtainable fails in its purpose if it is not properly sized for the particular job it must do. The customer whose heating requirements were underestimated at the time of installation feels that gas is incapable of keeping a house comfortably warm. On the other hand, the customer who bought a heating unit much larger than necessary has an exaggerated idea of the expense of heating with gas. Neither of these customers will be good boosters for your heating business, and a successful heating business frequently requires word-of-mouth advertising of satisfied customers.

There are many methods for determining the size or number of heating units required for space heating. Some are simple and can be applied by anyone while others delve into the principles of heat transfer and require the services of a professional engineer. The former are frequently very rough estimates of the heat required, while some of the latter professionally administered methods can predict within 1% the amount of heat required to maintain a given temperature in a building of a specified size when the outside temperature is known.

All of these methods utilize the principles of *heat loss* in their calculation. The amount of heat which is lost from a building must be replaced by an equal amount of heat to maintain a set temperature. These heat losses occur through two sources: (1) transmission losses, or heat transmitted through confining walls, floors, ceiling, window glass, or other surfaces, and (2) infiltration losses, or heat required to warm outside air which leaks in through cracks and

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Fig. 1

crevices, and around doors and windows, or that air which is purposely admitted for ventilation.

Insulation, double windows, and low-conductivity floor coverings are designed to combat the first type of losses, while weather stripping and caulking are used to prevent the second. The less heat that is lost through these two means, the smaller the initial cost of the heating unit, and the lower the monthly gas bill.

Perhaps the simplest method for sizing is the zone method. Ivan Tagstad of Household Gas Co. in Eau Claire, Wis., is one of the many who report that he uses this method with good results.

Fig. 1 shows a map of the United States zoned into various belts according to the temperature of different sections of the country. The northernmost states—Montana, North Dakota, Minnesota, and Maine—are the coldest regions and require more heat to keep homes at a comfortable temperature. The 12 Btu figure shown on this northern strip just south of the Canadian border represents the number of Btu per hour required per cubic foot of building interior to maintain an interior temperature of 70° F. This figure is based on the coldest expected temperature to be encountered throughout the year.

The southern section of the country, as seen by the zoned map, requires only half as much heat per cubic foot for house heating. The zones between require varying amounts of heat.

The Btu figure shown on the map must be multiplied by the number of cubic feet of space to be heated. This requires measuring the width and length of each room in the house and multiplying this area by the height of the ceiling.

For example, a dealer is selling a perimeter heating unit to a family that lives in North Dakota. The house contains four rooms, and for the sake of simplicity, these rooms are assumed to be the same size and have the same dimensions, 15 ft long, 12 ft wide, and with an 8-ft ceiling. By multiplying the length of the room by the width, the floor surface is obtained. This figure is 180 sq ft, and when multiplied by the height of the room gives the volume of the room, which is 1440 cu ft. The four rooms in the house contain a total of 5760 cu ft of space to be heated.

Looking on the map in *Fig. 1* we see that North Dakota lies in the 12 Btu per cu ft zone. We multiply this figure by the space to be heated and come up with 69,120 Btu, which, by this method, is the amount of output required from the heater used. Most dealers who use this system choose the heater with the output capacity just above this figure.

TABLE 1

TYPE OF BUILDING	MAJOR QUALIFICATIONS	MINOR QUALIFICATIONS	MULTIPLY CUBIC CONTENTS BY†
Factories or Warehouses 65F Inside	One Story	Skylight in roof	5.8
		No skylight in roof	5.3
	No Skylights	Two story	4.3
		Three story	4.0
		Four story	3.8
		Five story	3.6
		Six story	3.4
Public Garages 60F Inside	All Walls Exposed	Skylight in roof	5.5
		No skylight in roof	5.1
		Heated space above	4.0
	Warm Party Walls on Both Long Sides	Skylight in roof	4.7
		No skylight in roof	4.4
		Heated space above	3.0
	One Long Warm Party Wall	Skylight in roof	5.0
		No skylight in roof	4.9
		Heated space above	3.4
Stores[1] 70F Inside	All Walls Exposed	Flat roof	6.9
		Heated space above	5.2
	Warm Party Walls on Both Long Sides	Flat roof	5.8
		Heated space above	4.1
	One Long Warm Party Wall	Flat roof	6.3
		Heated space above	4.7
Residences 70F Inside	For Entire Building[1]	No insulation	6.5
		With roof insulation only	6.0
		With roof and wall insulation	5.5
	First Floor Rooms[2] with Heated Space Above	No storm windows, no wall insulation	5.8
		All storm windows, no wall insulation	5.5
		No storm windows, walls insulated	5.5
		All storm windows, walls insulated	5.1
		Sun rooms and other rooms having an unusually large number of single windows and at least 2 exposed walls	10.0
		Sun rooms and other rooms having an unusually large number of windows, all storm windows, and at least 2 exposed walls	7.0
	Upper Floor Rooms[2] or Bungalow Rooms	Single windows, no insulation in ceiling, flat roof	7.3
		All storm windows, no insulation in ceiling, flat roof	7.0
		Single windows, insulation in ceiling, flat roof	6.5
		All storm windows, insulation in ceiling, flat roof	6.2
		Attic space above, single windows, no insulation in ceiling, eaved roof	6.8
		Attic space above, all storm windows, no insulation in ceiling, eaved roof	6.5
		Attic space above, single windows, insulation in ceiling, eaved roof	6.0
		Attic space above, all storm windows, insulation in ceiling, eaved roof	5.7

†Figures are in all cases Btu heat loss per cu. ft. of contents. Factors apply only to inside temperatures listed in first column and to 0F outside temperature.

[1]If building has bad north and west exposures increase heat loss by 10%.

[2]If room has bad north and west exposures increase heat loss by 20%.

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TABLE 2
Correction Factors

MINIMUM DESIGN TEMPERATURE	CORRECTION FACTOR
+50 degrees	0.29
+40	0.43
+30	0.57
+20	0.72
+10	0.86
0	1.00
−10	1.14
−20	1.28
−30	1.43

TABLE 3
Temperature Difference Between Inside and Outside

70° F	60° F	50° F	40° F
100	85	75	60

TABLE 4
Temperature Difference Between Inside and Outside

70° F	60° F	50° F	40° F
18	15	12	10

The AGA rates gas heaters on the basis of Btu output. The input and the output are the same for unvented heaters. To determine the output of vented gas heaters multiply the input by 70%. For example, a vented heater with 50,000 Btu rated input will have an output of 70% of 50,000 or 35,000 Btu.

With this commonly used method of rough estimation, no allowance is made for the special insulation, storm windows, and special building materials used. These factors frequently have an appreciable effect on heating, and their use may cut in half the heating requirement of a house.

If a more accurate method of calculating the heat loss is desired, *Table 1* may be used. This is a method recommended by the National Council for LP-Gas Promotion, and may be applied by the layman. Here again, it is necessary to measure the length, width, and height of all rooms in the house, and determine the number of cubic feet to be heated. Then a survey of the house will determine the conditions so that the proper factor may be chosen from the table.

The temperature correction factor table *(Table 2)* is then consulted to determine the second factor to be used. For example, if the region in which your heating customer lives has an average mid-winter low of −10° F, you read across from that figure and pick off the correction figure which in this case is 1.14. This is then multiplied by the factor from the table on the opposite page, and the product is multiplied by the total cubic feet to be heated.

Still another method may be used where even greater accuracy is required. It is known by heating engineers that the heat loss per square foot varies through the ceiling, the floor, the exposed walls, and the windows. In this sizing system, the expanse of enclosing areas is considered rather than the volume of the rooms.

First, the area of the windows and doors in exposed walls is calculated. The width and height of each is measured to the outside of the frames, and the computed areas are added together. This figure is multiplied by the applicable figure found in *Table 3*. The temperature difference is the difference between the coldest anticipated temperature and the desired inside temperature.

Next, compute the area of all ceilings, the length times the width, and multiply this total by the proper figure shown in *Table 4*, chosen the same way as that for the windows and doors.

Then determine the entire floor area, length times the width, and multiply this figure by the applicable figure in *Table 5*. Protected floors as a rule have a smaller loss than floors on piers that afford an air passage underneath, so two sets of figures are given. The fourth is to compute the area of the outside walls, height times the length minus the space already calculated for doors and windows. Multiply this figure by the correctly chosen figure in *Table 6*.

Next, calculate the heat loss due to air changes within the building. The previously calculated figures have been transmission losses. This is an infiltration loss due to air seepage under doors, around windows, and through loose wall boards. The volumes of the rooms are used in this calculation, and the total is multiplied by the applicable figure from *Table 7*.

Finally, add the five results from the above calculations, and you have the total estimated heat loss, which, of course, is the amount which you must add to maintain a constant temperature in the house.

The above methods are but a few of the heat loss calculations used. Other methods are described in the Heating, Ventilating, Air Conditioning Guide*, in the Handbook Butane-Propane Gases**, and other heating sources. ■

*Published by ASHVE.
**Published by Jenkins Publications Inc.

TABLE 5

Type of Floor	Temperature Difference Between Inside and Outside			
	70° F	60° F	50° F	40° F
PROTECTED	18	15	12	10
UNPROTECTED	26	22	18	15

TABLE 6
Temperature Difference Between Inside and Outside

70° F	60° F	50° F	40° F
20	17	15	12

TABLE 7

Type of Construction	Temperature Difference Between Inside and Outside			
	70° F	60° F	50° F	40° F
WELL BUILT — Weather stripped, double doors, etc.	2.0	1.6	1.4	1.1
AVERAGE — Frame, not weather stripped but fairly tight	2.5	2.1	1.7	1.4
POORLY BUILT — Cracks under doors and windows, thin walls, etc.	3.0	2.5	2.1	1.7

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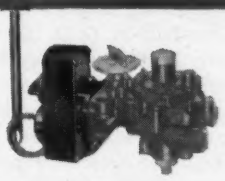

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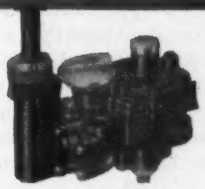

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Learn How to Correctly Install Heating Equipment

There are many things to be considered when it comes to the proper installation of househeating equipment. For instance, where should heaters and warm air inlets be placed? What is the proper size for the fuel supply line? How can an adequate supply of air be provided? Where should the thermostat be mounted? These and other questions vital to installation are treated here.

By Harold C. Hood
Field Editor

INSTALLATION of househeating equipment is vitally important for several reasons. First, househeating generally consumes more gas than any other household usage. During the heating season, furnaces and heaters are used steadier and over longer periods of time than any other appliance. Heaters and furnace vents and ducts are frequently in most intimate contact with the structure of the house, and can provide the greatest safety hazard if not properly installed.

A few general rules on installation hold for all househeating units. Others more specifically related to various types of heating units will be discussed later.

For maximum comfort in the home, heaters and warm air inlets should be installed so that they face the side of the room that has the greatest area of glass. Theoretically, the greatest amount of heat is lost through this side of the room, and the most heat is required here.

So many variables exist in the placing of space heaters and registers that each must be considered separately. Perhaps the only rule that holds true in most cases is to place heat outlets in the path of natural air circulation, in such a manner that they do not create a hazard of any type.

Care should be taken that the fuel supply pipe to the furnace is of adequate size. Much trouble has been caused in the past by employing the ⅜-in. O.D. copper tubing so commonly used in the LPG industry in connecting ranges and water heaters. One-half-in. O.D. tubing will carry only 75,000 Btu (30 cu ft of propane) per hour the distance of 34 ft with a pressure drop of .55-in. wc. Any pressure in excess of .55-in. wc should be avoided. Pipe sizing charts are readily available.

When converting a furnace previously using another fuel, follow closely the recommendations of the equipment manufacturer. Before making any type of conversion, make sure that the furnace is in good condition. An LPG burner installed in a coal furnace with a cracked firepot will be poor advertising for your heating business. Never install an atmospheric-type burner in a downdraft (revertible flue) heating plant. Use approved power burners for such furnaces or boilers.

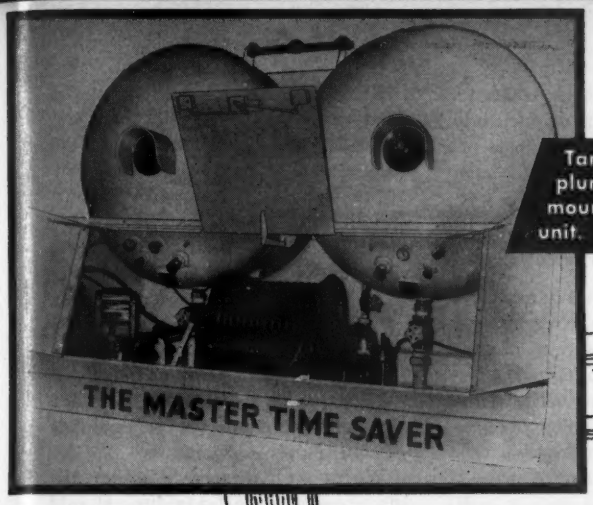
Space heaters must never be placed so as to constitute a fire hazard. The distance of heating units, their vents, and their ducts from curtains, drapes, towels, and other combustible materials should be sufficiently great to insure complete safety from fire. Heaters should never be placed in bedrooms in such a way that bedclothes may be draped over them.

In selling the frequently used circulator type of heater, be careful not to oversell its capabilities. Do not promise the customer that he will have sufficient heat in all rooms from just one circulator or panel heater.

It is generally better to install two small circulators or panel heaters in a home or apartment than one large unit, since cold air is collected from more than one location. Also, warm air is supplied to more than one spot in the room, and the temperature is likely to be more even throughout.

The modulating or throttling type of thermostatic control provides more continuous operation than the off-and-on type, thereby providing better circulation and more constant temperature. The main objection to this type of heater is that in mild weather it has a tendency to overheat the house if the lowest position supplies too much heat. Units are currently being developed which make use of a modulating control and incorporate a full-off position to operate if the room temperature becomes too high in mild weather.

The location of existing vents and gas outlets will largely determine the location of direct space heaters added after the house is built. These



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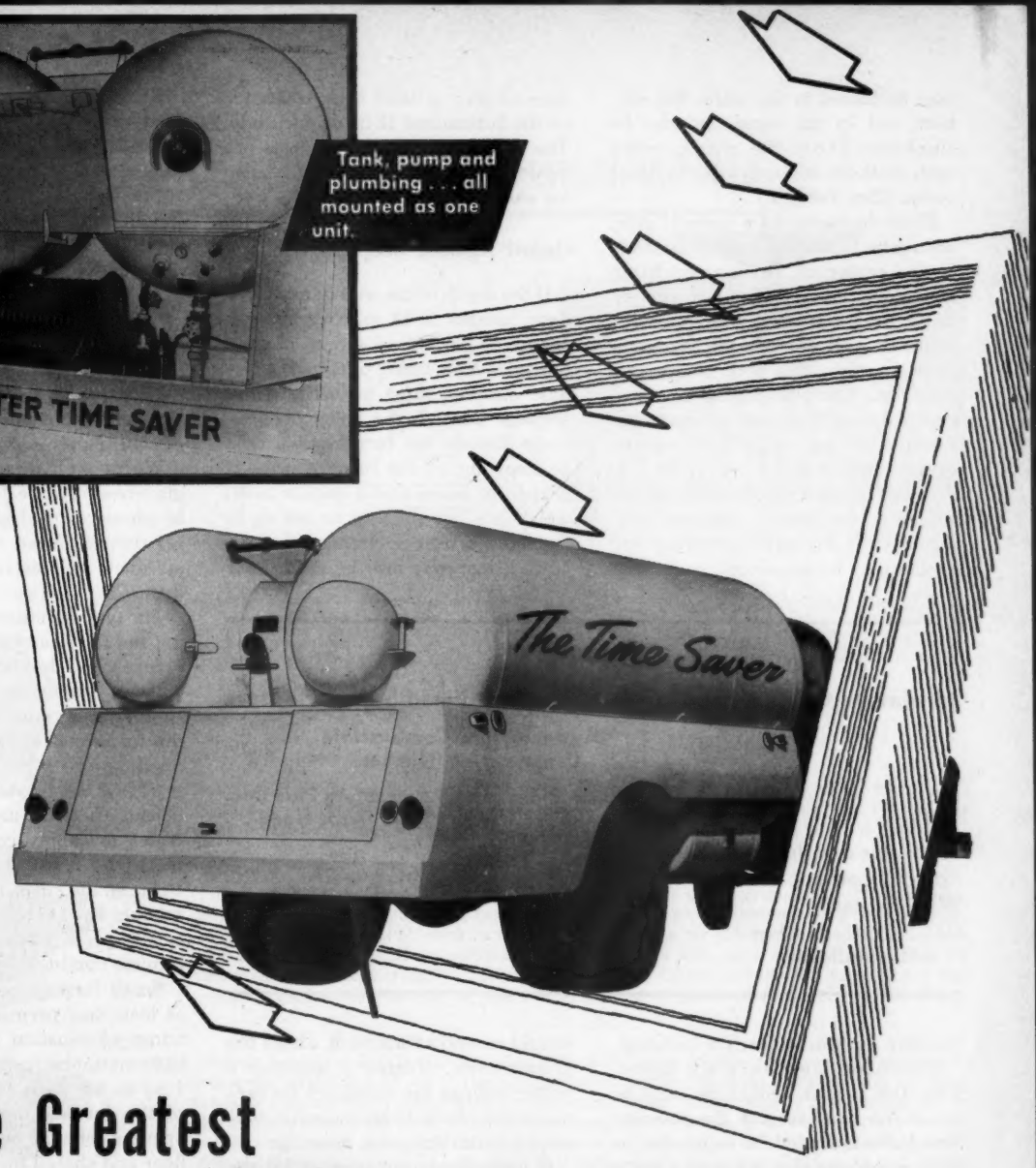

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may be placed in the walls, the corners, out in the room, or may be suspended from the ceiling, when such methods are approved by local codes. (See *Table 1.*)

Floor furnaces, as a general rule, should be located as near as possible to the center of the space being heated. If one wall has appreciably more heat loss than the others, it might be well to move the floor furnace closer to this wall. When two rooms are being heated by the same floor furnace, it is best to locate the furnace in the room having the greater heat loss.

Floor furnaces should never be installed in the floor of aisles or passageways of any public building, nor should they be suspended under any exitway or door of such a building.

Structural members no lighter than the joists should be used to brace the floor around the furnace. The furnace should be supported in such a manner that when the grille is removed suspension of the furnace is in no way affected.

Floor furnaces should not recirculate air from bathrooms or other rooms where odors might originate. Furnaces in adjacent rooms should be sized to provide the right amount of heat for these rooms.

Any confined space which encloses the floor furnace should be supplied with fixed ventilation by means of a duct or a grille. The duct or grille must be screened. The free area should be at least twice the free area of the vent collar of the furnace, or 1 sq in. per 1000 Btu per hour of gas input, whichever is the greater.

The lowest portion of the floor furnace should be 6 in. or higher off the ground. If this clearance does not exist, a well must be dug below the furnace to give at least 6-in. clearance on the bottom and 12 in. on each side. The side on which the controls are mounted must have 18-in. clearance for easy access.

Guard Against Seepage

If the depth of the well beneath the floor furnace is 12 in. or greater, a copper or galvanized pan, a concrete lining, or a pit lining of equally suitable material must be used. Water seepage through the floor can seriously damage the furnace and must be kept out of the furnace area. If copper is used for a pan, it must weigh not less than 16 oz per sq ft. Galvanized iron no thinner than 24 U. S. gauge may also be used. Pans should extend at least 4 in. above the ground level. Neither a well nor a protecting pan are necessary for furnaces that have been sealed in waterproof and fireproof housings.

If galvanized iron is used for the pan, a layer of red lead or tar must be used on the outside. Steel angles should be bolted, riveted, or welded to the corners of the pan and securely fastened to the adjoining framework of the building.

Easy access to the furnace must be provided by an opening in the foundation wall or by a trapdoor located at some convenient point. The trapdoor should measure at least 18 x 24 in., and it is recommended that it be not further than 20 ft from the furnace.

Registers other than wall types should clear the nearest wall by at least 6 in. Registers mounted in the wall should be no closer than 6 in. from the nearest corner. No register should be placed so that doors or drapes can swing within 12 in.

TABLE 1

Minimum Clearances for Approved Gas-Fired Space Heaters

Type	Distance from Combustible Construction (Inches) Jacket, Sides, and Rear	Projecting Flue Box or Draft Hood
Warm air circulators.....	6	2
Radiant heaters	6	2
Wall heaters	Flush	—
Gas, steam, and hot water radiators	6	2

Floor registers should be mounted flush with the surface of the floor. When mounted in the wall, registers should extend down to within 1 in. of the floor and their uppermost point should be no higher than 14 in. Care should be taken that registers are not mounted in such a location as to draw in objectionable odors.

Controls for the floor furnace should be mounted on a riser so that they do not get wet if water floods the area under the house. This practice also increases the accessibility of controls for servicing.

Warm air furnaces of either the gravity or forced-air type should be placed as centrally as possible in relation to house registers. Shorter air ducts will be required if this is done.

The type of construction of a building and the size of the room in which a furnace is located will determine whether provisions for an adequate supply of air must be considered. If the furnace is located in an unconfined space within a conventional brick, frame, or stone building, sufficient outside air generally infiltrates to supply combustion. If the building construction is unusually tight, or the room in which the furnace is installed is exceptionally small, special steps must be taken to provide combustion air.

Small furnace rooms should have at least two permanent openings to admit combustion air. Each should have an unobstructed area of at least 1 sq in. for each 1000 Btu per hour of the furnace input. One of these openings should be located near the floor and should be positioned below the combustion air inlet. The other should be near the ceiling, and should be above the relief opening of the draft hood. The distance between the horizontal centerlines should be no less than 3½ ft.

Ducts and Crawl Space

Where the construction of buildings is too tight to permit ventilating the furnace room from air in the rest of the house, ducts or crawl passages may be used to supply combustion air. In such cases, the total area of the two openings discussed shall contain 1 sq in. for each 100 Btu per hour of furnace input. The areas of the two openings shall be about equal. If ducting is necessary for obtaining air from unconfined spaces,

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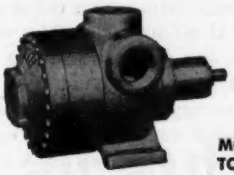

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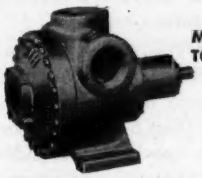

MODEL TC-2

Our most popular delivery truck model. For 500 RPM power takeoff drive and 2½" inlet piping. May be used in a 2" system, but capacity will then be somewhat reduced. When properly installed, will run a 30 GPM meter to maximum capacity against differential pressures as high as 75 p.s.i. Will normally fill any consumer tank as fast as its filler valve will accept fuel. Will fill nearly all large tanks having 1¼" filler valves at the 30 GPM rate without a vapor return connection being made. Tanks with ¾" and smaller filler valves always fill slower, at 20 GPM or less.

MODEL TC1044H

Another popular model. For 2" piping and 900 RPM drive. Suitable for average delivery trucks where the greater part of the service is filling consumers' smaller tanks equipped with ¾" filler valves or less, but where larger tanks are occasionally filled. When properly installed and run at the recommended speed, (900 RPM, usually requiring power takeoff having 1 to 1 gear ratio), will fill small tanks, and tanks with ¾" filler valves and less, just as fast as the larger TC-2 above. Actual delivery to large tanks with 1¼" filler valves rarely exceeds 22 GPM at 75 p.s.i. differential, due to the smaller size of this pump. Light in weight and easier to install than the TC-2.

MODEL TC1044

Designed especially for small delivery trucks, for filling trailer bottles, single 100 lb. cylinders and other small consumer tanks from the truck. Rated transfer capacity 20 GPM at 500 RPM maximum. Weight of pump only, 40 lbs. All ports threaded 1½", standard pipe size. Inlet pipe, valves and fittings can be 1½", but 2" will assure faster delivery.

These pumps may be operated in either direction of rotation, so will load and unload through the same piping, if a reversing power takeoff is provided.

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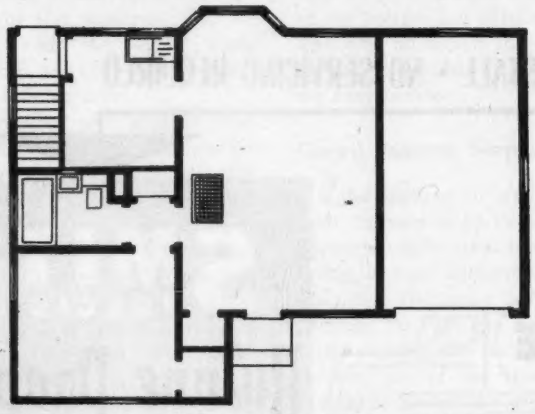
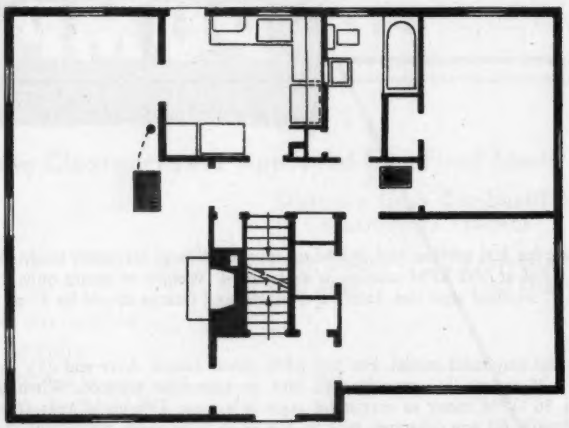
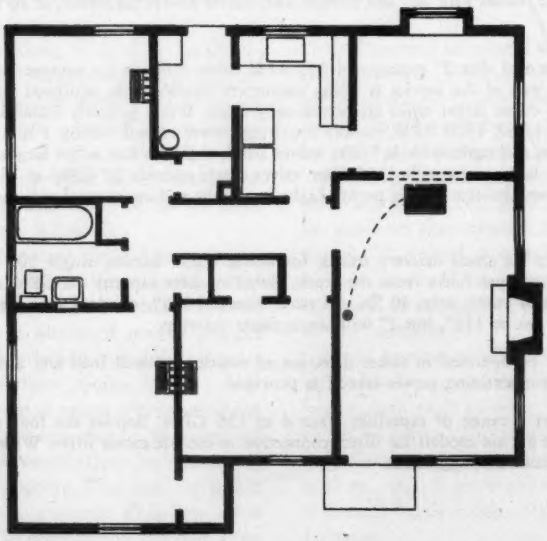


a. Single Floor Furnace, Single Register Type



b. Two Floor Furnaces, Single Register Type



c. Several Floor Furnaces, Single and Dual Wall Types

Proper placement of registers is important if utmost heating efficiency is to be attained. Registers should be placed in the paths of natural air circulation so that heat is evenly distributed. A secondary consideration in register placement is the fact that the greatest heat should be directed against that side of the room through which the most heat is lost. This heat loss might be due to a large area of glass, or to prevailing winter winds. Circled X indicates alternate location for register.

ducts must be of the same cross-sectional area as the openings they serve. Ducts serving the upper opening shall be horizontal or pitched up. Openings shall be located approximately as described above.

Furnace rooms should have openings large enough for removal of any part of the heating unit installed therein. The opening should be at least 6 ft high. Ample clearances should be provided for cleaning and servicing controls, motors, and other parts.

Rules for Clearance

A forced warm air furnace should have clearances of at least 6 in. from any combustible material on all sides, providing it is equipped with an approved temperature limit switch that keeps temperature from rising above 250° F. If no such switch is on the furnace, the clearance in the front and on the top shall be at least 18 in. Under no condition shall the furnace be placed in such a manner that the temperature of any surrounding combustible material is raised more than 120° above the normal room temperature.

All gravity warm air furnaces should clear combustible materials to the top and to the front by at least 18 in. At least 6-in. clearance is necessary to the back and sides. As in the case of the forced warm air furnace, the temperature of surrounding combustible material must never be raised more than 120° above the normal room temperature.

Mounting Thermostats

Thermostats should be mounted in such a location that they are in the natural circulating path of room air. They should not be exposed to direct sunlight, infiltrating cold air, drafts from windows and doors, or air currents from registers or other heating devices. Walls containing pipes or warm air ducts should not be chosen for the location of the thermostat, nor should spots behind doors, in corners, or below a mantle where the natural air circulation is shut off.

The living room is probably the most practical location for a central heating system thermostat. Bathrooms, kitchens, and bedrooms are not recommended for placing thermostats. ■

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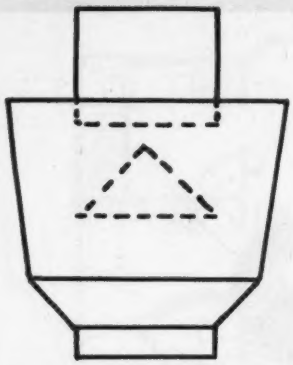

Fig. 1. A typical draft hood. The appliance is located directly below the draft hood, and the vent fastens to the upper section.

Rules and Regulations for Venting Heating Equipment Safely and Correctly

By Harold C. Hood
Field Editor

GAS heating units are vented for two reasons—health and comfort. LPG that is not properly burned, that does not receive sufficient oxygen for complete combustion, gives off a certain amount of carbon monoxide. This gas is toxic to the human system, and can cause death if taken in large enough quantities.

Carbon dioxide is also given off by burning butane and propane, and while not toxic, can cause discomfort from the symptoms of suffocation by replacing the oxygen that is so necessary for life.

Another product of combustion of LPG, whether completely or incompletely burned, is water. As long as the air in the room is warm, the water remains in the air in the form of vapor and becomes oppressive. Yawning and sleepiness in unvented, gas-heated rooms are due in large part to this excessive moisture that is suspended in the air. Clammy bed sheets and towels, and sweating walls also result from unvented gas heaters. Every gallon of butane burned produces 1 gal. of water, and unless this water is vented out of the room in the form of vapor, it must eventually condense in the room.

Regulations regarding venting of appliances have recently been undergoing revision, and as additional aspects of venting come under study by the NFPA committee, more changes may be expected.

Some of the larger vent manufacturers have expended much time and effort to overcome a number of practices and theories which they consider obsolete. One of these companies, William Wallace Co. of Belmont, Calif., has developed an extensive set of vent design tables which approach the problem of venting from a design standpoint rather than from that of capacity. This company would like to suggest that, in revision of its codes, the NFPA take into consideration the validity of manufacturers' approved design tables, and permit their use in standard practice.

In the meantime, it is suggested that all heating appliances equipped at the factory with vent collars be connected to approved flues and vented to the outside atmosphere. The current copy of the NFPA pamphlet No. 52 and the latest local codes should be kept on hand for guidance in installation of heating appliances.

All gas appliances connected to a flue extending to the outer atmosphere should utilize a draft hood to insure correct operation. The one exception to this rule is the gas-fired incinerator which has a continuous unbroken flue pipe to the chimney.

A draft hood is a fitting or device placed in and made a part of the appliance itself, and generally takes the form of the one shown in *Fig. 1*. Its purpose is to insure the ready escape of the products of combustion in the event of no draft, back-draft, or stoppage beyond the draft hood.

The draft hood is tested by the AGA as part of the appliance, and must be furnished by the appliance manufacturer with the appliance. It is not customary for the draft hood to be considered part of the flue pipe, nor is it ordinarily furnished by the vent manufacturers. The sole exception is in the case of conversion burn-

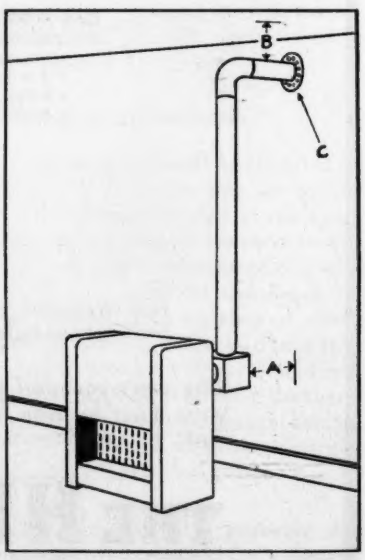

Fig. 2. A properly vented gas heater has a thimble (C) wherever the vent passes through a partition or wall. Heater should be the proper distance from wall (A) and ceiling (B).

VENTING HEATING EQUIPMENT

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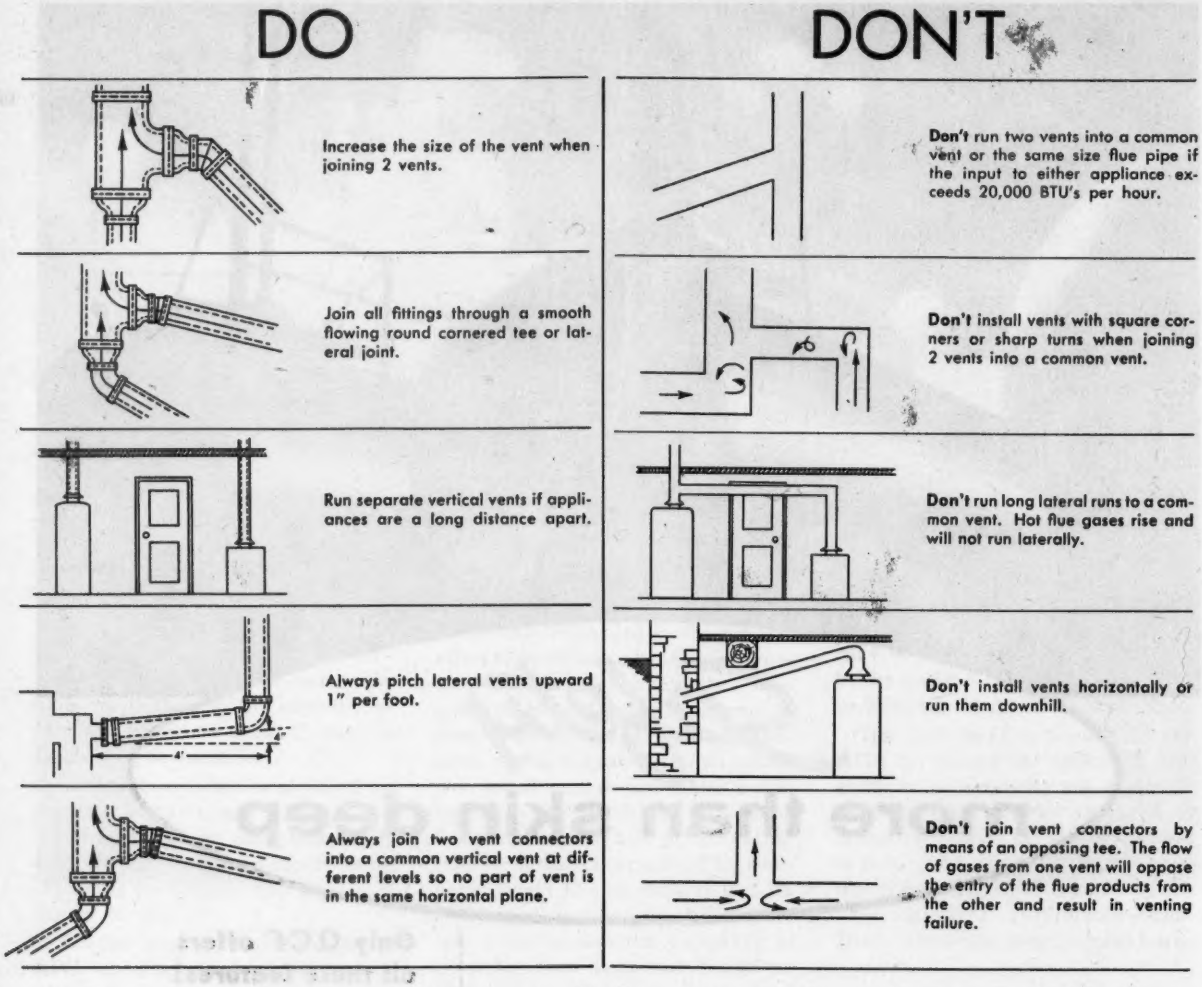
DO
DON'T
Increase the size of the vent when joining 2 vents.
Don't run two vents into a common vent or the same size flue pipe if the input to either appliance exceeds 20,000 BTU's per hour.
Join all fittings through a smooth flowing round cornered tee or lateral joint.
Don't install vents with square corners or sharp turns when joining 2 vents into a common vent.
Run separate vertical vents if appliances are a long distance apart.
Don't run long lateral runs to a common vent. Hot flue gases rise and will not run laterally.
Always pitch lateral vents upward 1" per foot.
Don't install vents horizontally or run them downhill.
Always join two vent connectors into a common vertical vent at different levels so no part of vent is in the same horizontal plane.
Don't join vent connectors by means of an opposing tee. The flow of gases from one vent will oppose the entry of the flue products from the other and result in venting failure.

Fig. 2.

ers, which are not complete appliances.

Vents are meant to do more than merely conduct heated gases to the outside atmosphere. They must be designed and installed to prevent overheating of nearby combustible material during the process. Three factors are present in this last function—the temperature of the gases, the non-conducting properties of the vent, and the separation of the flue from adjacent combustible material. Also to be considered is the durability of the flue. For that reason we are interested in the material of which the flue is constructed, and its resistance to deterioration due to the products of combustion.

The material used classifies the vent. There are three classifications, A, B, and C. Type A flues are made of masonry, or reinforced concrete, or are metal stacks. Type B consists of vent piping of non-combustible, corrosion-resistant material of sufficient thickness, cross-sectional area, and heat insulating quality to avoid excess temperature on adjacent combustible material, and certified by a nationally recognized testing agency. Type C flues are vents made of sheet copper of not less than No. 24 U. S. standard gauge, or of galvanized iron of not less than No. 20 U. S. standard gauge, or of other approved corrosion-resistant material. Problems relating to materials and corrosion problems are dealt with in the pamphlets previously mentioned.

All flues should be kept at a safe distance from combustible materials by the use of ventilated thimbles where they pass through walls or partitions. The actual diameter of flues using thimbles is sufficiently smaller than the diameter of holes in such partitions that surrounding materials are not dangerously heated.

The National Council for LP-Gas Promotion passes on five suggestions for venting gas heaters. The first deals with the joining of two vents. If gases from two heaters are to be carried to the outside atmosphere by a common chimney or pipe, the size of this should be greater than either of the heater vents. The committee gives an exception to this rule, providing each of the appliances has an output of no more than 20,000 Btu per hour.

Suggestion No. 2 concerns all fittings used in joining vents. All tee's and lateral joints should have rounded edges making for a smooth flow. There should be no square corners or sharp turns to cause turbulence in exhaust flows.

Third, if appliances are a good distance apart, separate vertical vents should be used rather than long lateral runs to a common vent. The committee points out that hot flue gases rise, but will not run laterally.

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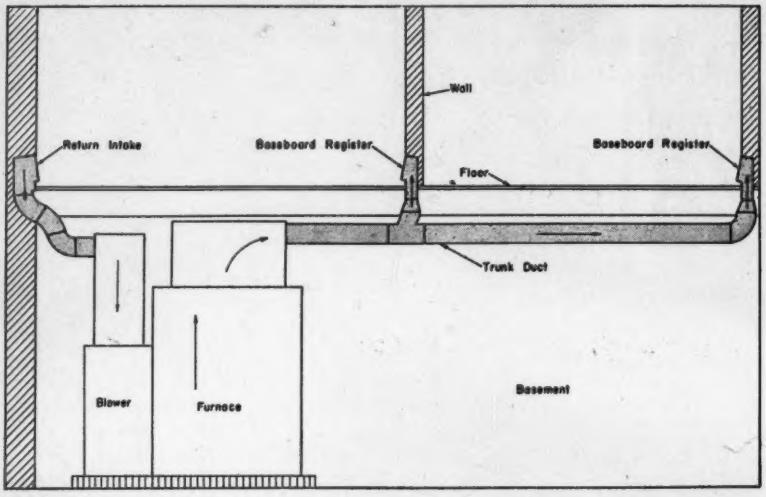

Fig. 4. A typical forced warm-air furnace. Ducting must be carefully designed to permit the proper flow of air.

In its fourth suggestion, the committee states that where lateral runs are necessary, the vents should be pitched upward at the rate of 1 in. per foot. Vents should never be installed horizontally or downhill.

Finally, whenever two vents are connected to a common vertical vent, this should be done at different levels. The horizontal vents should never open at the same level, as this causes gases from one vent to oppose the entry of those from the other vent. Venting failure will result.

The above recommendations passed on by the council are by necessity based on compromises to compensate for the differing characteristics of various vent materials and methods of vent installation. Chief Research Engineer Richard L. Stone of the Metalbestos division, William Wallace Co., suggests that approved vent pipe design data furnished by each manufacturing company for its specific product be used in lieu of instructions in a general code.

He points out that, as an example, studies conducted by his company and by the AGA Laboratories indicated that horizontal runs of the type of vent piping manufactured by Metalbestos cause no difficulty if there is an initial rise in some section of the vent or draft hood preceding the horizontal run. The requirement of 1 in.-per-ft rise is obsolete when applied to the type of vents manufactured by his company, according to Mr. Stone.

As further evidence of obsolescence of current venting procedures, Mr. Stone points out that connection of two appliances into a common vent at approximately the same level will cause no difficulty if the connectors have sufficient vertical rise in relationship to their heat input, size, and height, and size of the common vent. This is in direct contradiction to the suggestion of the council but, according to Metalbestos, applies to its products.

General Gas Light Co., manufacturers of Humphrey gas heaters, offers some worthwhile suggestions regarding LPG installations in buildings formerly heated by coal or oil. Venting troubles represent one of the major headaches with such installations.

General Gas suggests that chimneys be thoroughly cleaned before gas heater vent pipes are attached. The cleanout door should be opened and all soot, ashes, loose mortar, dead birds, and leaves should be carefully removed. A long rope with a bundle of rags tied at the center will serve as a good chimney cleaning tool. Two men are required and the rags are worked up and down the chimney until it is clean.

Metalbestos recommends that all chimneys used for venting gas fumes be lined with a metal vent made specifically for the purpose. It reports that many communities have found extensive chimney damage where unlined masonry chimneys have been used as gas vents. This damage, with deterioration of the mortar and possible moisture problems, can be avoided by using a corrosion-resistant liner to contain the vent gases.

Ducting is similar to venting in the respect that it must carry hot gas to a prescribed destination with as little heat loss as possible. It differs in that less danger exists from carelessly installed ducts. No fires may be caused, but efficiency of the heating system is proportional to the quality of the ducting in a warm-air system.

Duct systems for furnaces may be of two types. The first consists of a trunk-line system from the plenum of the furnace, with individual branches leading to individual registers or other openings in the space to be heated. The other is a series of individual ducts run from the plenum chamber to the registers.

Several of the rules regarding venting are applicable to ducting. A duct should have smooth-flowing, round-cornered joints, and should increase in size where two ducts join to form a single one. In the case of gravity-type central heating, all lateral ducts should be pitched sufficiently to facilitate upward movement of the warm air. This is not essential in forced-air central-heating systems as motor-driven blowers provide the motive power for air movement.

Several methods for determining the size of ducting are currently employed by heating and air conditioning men. One of the simpler of these in wide usage today takes into consideration the volume of space to be heated to determine the fan capacity necessary for a forced-air central-heating system and goes on from there to calculate the cross-sectional area of the ducting.

In this method, the total volume of the space to be heated, in cubic feet, is multiplied by five, and the result is divided by 60. This calculation gives the required fan capacity in cubic feet per minute.

Recommended maximum air velocities through various parts of the system are as follows:

Through warm air registers of the baseboard type	300 fpm
Through warm air registers of the high wall type (at least 6 ft up)	700 fpm
Through risers	450 fpm
Through branch ducts	500 fpm
Through main ducts	650 fpm
Through return air grill	500 fpm

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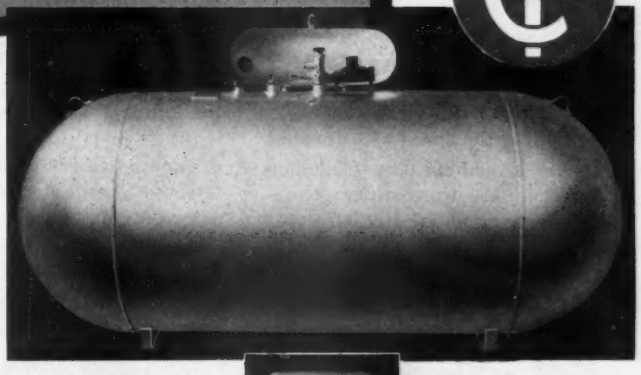

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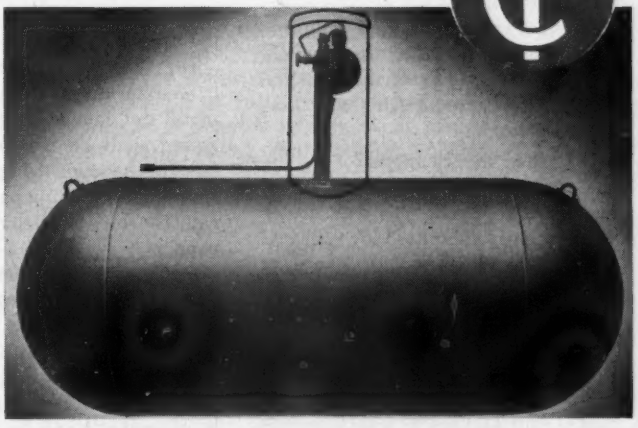

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Keeping these figures in mind, select a coefficient from the table below and multiply this by the cubic feet calculated in the first step.

Air Velocity	Coefficient
200	0.81
250	0.65
300	0.54
350	0.47
400	0.41
500	0.33
600	0.27
700	0.23
800	0.20
900	0.18
1000	0.16

The result of this multiplication gives the cross-sectional area in square inches of the round warm-air duct that will deliver adequate warm air to the space to be heated.

Tables in manufacturers' catalogs may be used to translate cross-sectional area into diameter of round pipe, or into the dimensions of rectangular ducting.

Return registers should be at least as large as supply registers, and some allowance should be made for the difference of velocities through the two registers.

More comprehensive and accurate methods for determining ducting sizes may be obtained from manufacturers or from such sources as the *Heating, Ventilating, Air Conditioning Guide*, published by the ASHVE, and publications of the National Warm Air Heating & Air Conditioning Association.

Upgraded specifications for the installation, venting, and design of the increasingly popular gas wall heater were recently submitted for approval to the Los Angeles City Board of Building & Safety Commissioners by the gas industry and the city research engineer. The new specifications were quickly adopted.

Tests were conducted over a period of four months by a fact-finding committee sponsored by the Institute of Gas Heating Industries Inc. Representatives of Gas Appliance Manufacturers Association, the three major vent manufacturers, and the Southern California Gas Co. composed the group. The tests were conducted at the plants of American Metals Products Co., Los Angeles, the Johns-Manville Co., Watson, Calif., and the William Wallace Co., Belmont, Calif.

Important sections of the committee's recommendations for recessed gas-fired wall heaters included:

Recommendation No. 1—Effective Aug. 1, 1955.

A. Type BW gas vents shall be installed as follows:

(1) The vent shall have not less than ⅜-in. clearance at all points. No lesser clearance shall be approved.

(2) The stud space in which the vent is located shall be free from obstruction at all points and open into the attic space. No plaster keys shall be permitted in this space. Where perforated lath or metal lath is used, sheet aluminum, galvanized steel, tin plate, or equivalent not less in thickness than 0.012 in. shall be nailed to the studs to form a barrier between the lath and the vent space.

(3) A metal sleeve not less in thickness than 26 gauge and of the same area as the studding space shall extend around the vent from the bottom edge of the ceiling joist into the attic space to a point 12 in. above the top of the ceiling joist; or, to a point 2 in. below the roof sheathing, whichever is the lesser.

(4) Spacers shall be installed at each vent joint in the wall space.

(5) Vents shall be rejected if the outer wall is bent, dented, or otherwise damaged to the extent that clearances are impaired or if the inner wall is distorted to the extent that the area is reduced.

(6) Where a vent is to be placed in an exterior wood frame wall, sheet metal not less in thickness than 28 gauge shall be nailed to the outer faces of the studs to separate the vent space from building paper, and separate the heater from the building paper.

B. Type B vents shall be installed under the following conditions:

(1) Type B cement asbestos vents shall be installed with not less than 1½-in. clearance at all points.

(2) Type B vents approved for 1-in. clearance shall be installed with not less than 1-in. clearance at all points.

(3) Spacers shall be installed at each vent joint occurring in a framed or furred space.

(4) Plaster keys will be permitted.

C. Vented recessed heaters shall not back into a linen cabinet. Where a vented recessed heater is located in a closet wall, the inner side of the wall section directly behind the heater shall be faced from floor to ceiling with galvanized iron not less than 28 gauge in thickness, or with aluminum not less than 30 gauge in thickness.

D. Where a vented recessed wall heater is installed in an existing wood frame wall, the wall shall be completely opened on one side from floor to ceiling.

E. That an ordinance amendment be drafted for later consideration to require additional safeguards for self-contained heating units installed in restricted spaces such as hallways.

Recommendation No. 2—Effective Jan. 1, 1956.

A. The approval requirements on type BW vent shall be revised to require that:

(1) The outer casing of double wall metal vent shall be constructed of galvanized steel not less than 28 gauge in thickness.

(2) The inner conduit, when made of metal, shall be constructed of 2S or 3S aluminum or equal in corrosion resistance and .012 in. in thickness.

(3) A positive hold-down means coordinated with the engagement holes for sheet metal screws in the header plate of the heater shall be provided.

(4) If the inner conduit is made of metal, the bottom edge shall be reinforced to minimize distortion.

(5) A test for displacement of the vent pipe from the header plate due to a vertical upward pull will be required.

B. Only vent pipe listed by an approved testing agency as type BW may be used between wall studding having a normal 2- x 4 in. dimension.

Recommendation No. 3—Effective Jan. 1, 1957.

A. The approval requirements on vented recessed heaters shall be revised to require that:

(1) The temperature of the circulating air at the discharge opening shall not be in excess of 290°F above room temperature.

(2) The average temperature of the flue gases from a recessed heater shall not exceed 380°F above room temperature with the flue open.

(3) The average temperature of the flue gases from a recessed heater shall not exceed 480°F above room temperature when the flue is partially or completely blocked, whichever results in the worse condition.

B. Only vented recessed heaters listed by an approved testing agency as complying with the above requirements may be installed. ■

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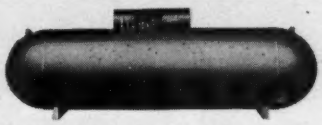

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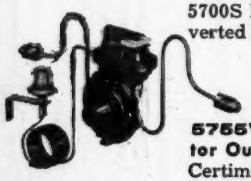

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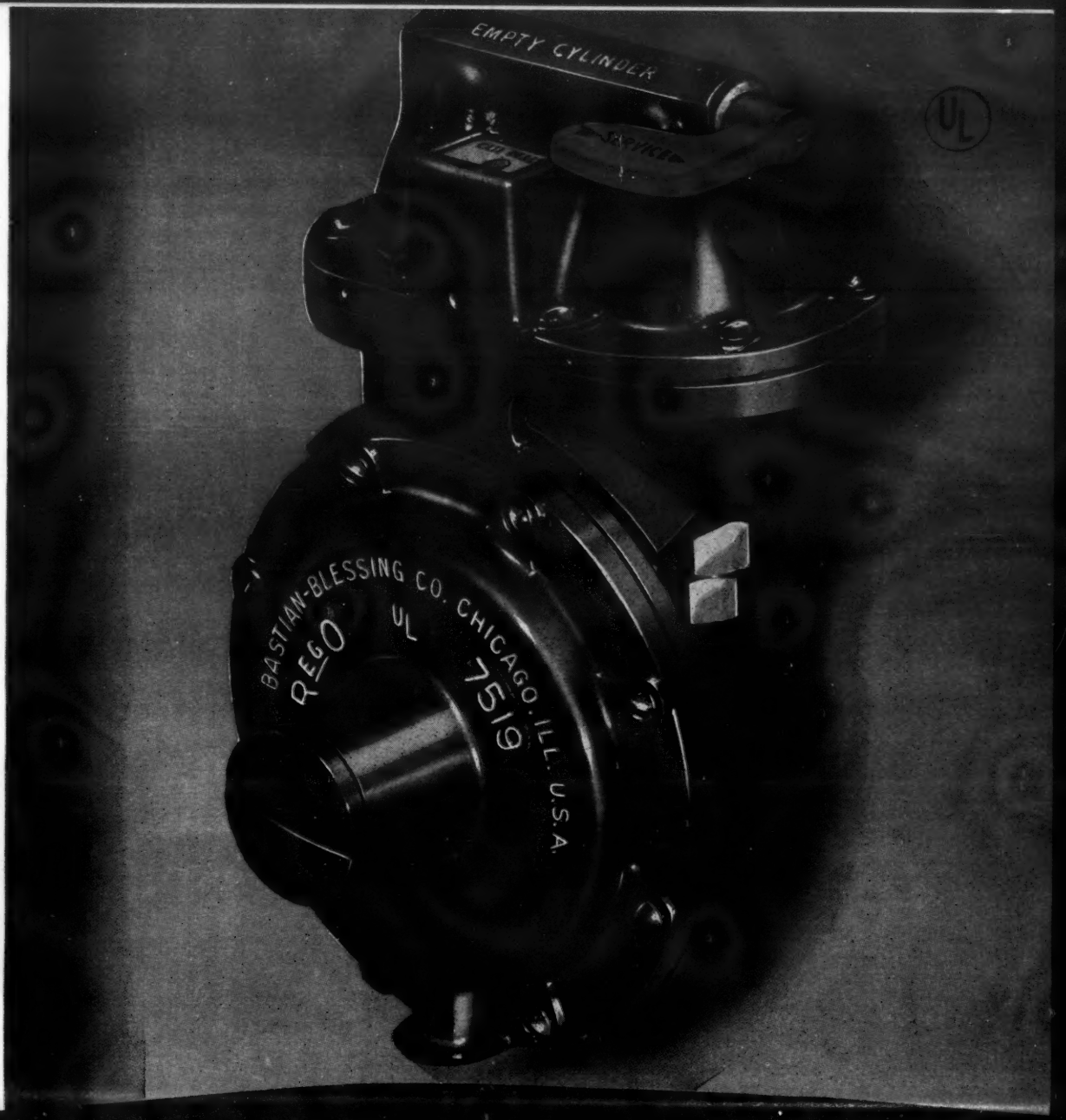

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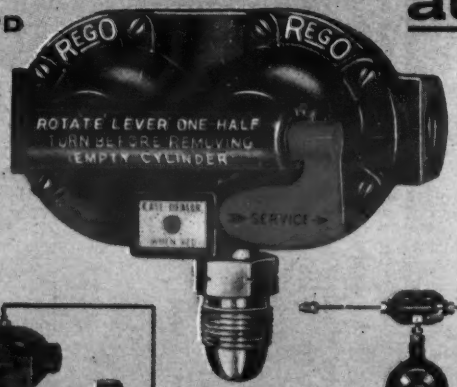

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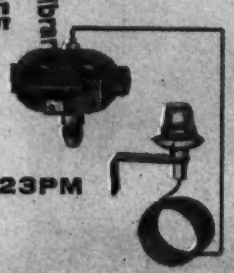

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By Harold C. Hood
Field Editor

Some less handy men-of-the-house will have enough trouble simply distinguishing a furnace from a water heater, so they can hardly be expected to know how to service it. The dealer should take pains to instruct the owner in the care and operation of the furnace at the time it is installed.

The first responsibility of the dealer after a heating equipment installation is the instruction of the customer in the care and use of his heating units. Every heating equipment dealer should know the basic facts about servicing the heating units he sells, and he can get this information from field representatives of the manufacturers and distributors of his heating equipment.

Trouble-Shooting Hints for Househeating Service Problems

SERVICE starts with the sale. Selection of the proper heating installation for the job can greatly ease your service problems later on, and, conversely, choosing the wrong unit can make your later associations with the heating customer a nightmare. The benefits of different types of heating units are discussed in another section of this issue.

Installation and sizing are also dealt with in another section, but a word about their relationship to service: The expense of hiring an experienced, capable heating engineer may seem exorbitant, but his salary is frequently recouped through savings in the service department. He will prevent your using incorrect controls, or installing the furnace in such a manner and in such a location as to do costly harm either to the unit itself or to surrounding parts of the house. Improperly chosen ductwork and registers may require replacement, which is a costly undertaking.

If your operation is such that you cannot afford a full-time heating engineer, take advantage of the knowledge and experience of the capable field representatives of the manufacturers and distributors of gas heating equipment. By working with them in sizing and selecting equipment the dealer will soon learn to handle the job by himself.

Customers' preferences and finances frequently dictate the type of equipment to be installed, but it is a good idea to do everything possible to upgrade the heating unit as much as possible. The better the materials and workmanship, and hence the higher the initial cost (usually), the less service calls the heating man has to make.

The first service responsibility after the installation is the instruction of the customer in the use and care of his equipment. Some heads of the household are by nature mechanically inclined, and will know inherently what should be done to insure proper operation of the heating unit. Others will have difficulty telling the heating equipment from the water heater, and should be given step-by-step directions regarding the care of their units.

Your customers should be cautioned about blocking registers or floor furnace openings with rugs or pieces of furniture. The importance of never obstructing the thermostat by hanging clothes or other items should be stressed. Use of controls should be thoroughly explained, and checking and relighting the pilot should be demonstrated. At least one member of the household should be instructed in the lubrication of motors or blower bearings where this is required.

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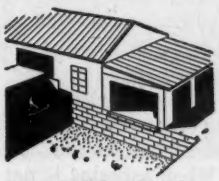
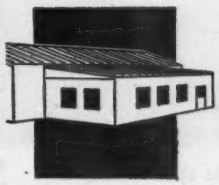
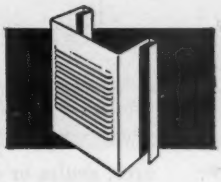


Armco Buildings can be set on almost any type foundation. Dock-height concrete or masonry foundations are often used.



Auxiliary space for many uses is available in standard lean-to units.



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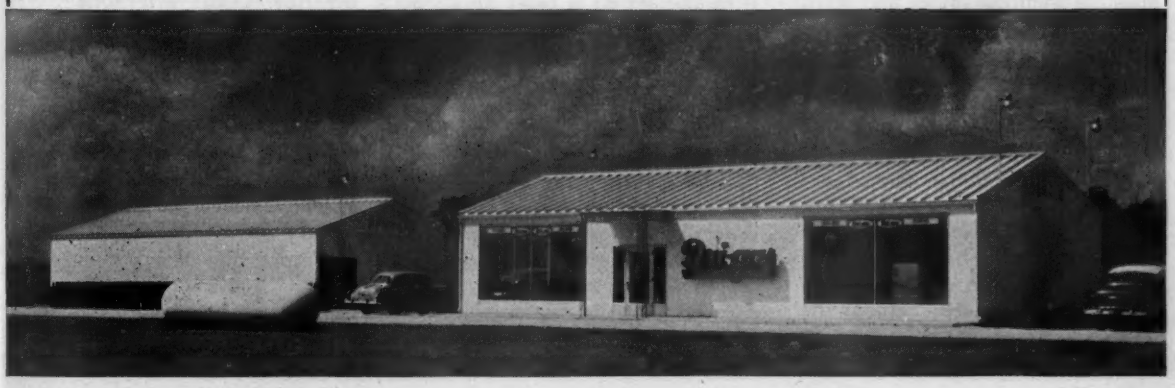


Service practices applicable to a particular heating unit may be learned from the manufacturer or his representative. These vary greatly for different types of equipment, and will not be discussed here. However, some frequently used trouble-shooting hints may be applied to gas heating in general, and may greatly simplify your service problems.

Excess Moisture

If an excess amount of condensation appears on the walls or windows, the trouble may stem from:

(a) *An open-fire heater that is unvented.* One gallon of propane produces almost 1 gal. of water, and if this heater is not vented in such a way as to carry the water vapor to the outside, the water will condense inside the room.

(b) *Heating equipment of insufficient capacity.* If all heating units are vented, and moisture continues to condense on walls, check the rating of the various pieces of equipment. If too little warm air reaches cold surfaces on outside walls and windows, more heating equipment may be required.

(c) *Obstructed vents.* When this happens, products of combustion may exhaust through the draft hood, and the water vapor contained will condense inside the room. Cleaning vents or flues will generally eliminate this trouble. (See page 74.)

(d) *Drapes around windows that are too heavy to allow proper circulation of air against windows and outside walls.* Pull these back so that warm air may contact the cold surfaces. Venetian blinds may also cause this condition, and this can be corrected by setting the slats so that they slant down toward the window.

(e) *Ground under the house that is flooded or exceptionally damp.* Moisture from this source may work its way into the house and be responsible for excess condensation inside. By draining water from under the house, or by installing ventilating grilles in the house foundation so that outside air may circulate under the house, this condition may be corrected.

Another difficulty frequently experienced in househeating results from the furnace not passing the rated amount of LPG. Perhaps the trouble is caused by:

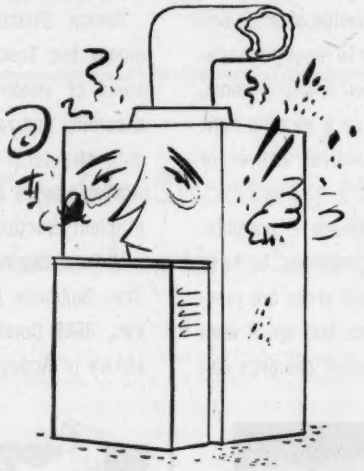
(a) *Dirty burner orifices.* Burners may be removed and cleaned to eliminate this trouble. Care should be taken that the size of orifices is not increased in the cleaning process.

(b) *Pressure regulator out of adjustment.* By clocking the gas meter, the flow of gas may be determined. Set the flow according to the rated capacity.

(c) *Main valve controlling gas to burner not fully open.* Open valve to maximum position.

Occasionally the burner flame appears yellow, lazy, or smoky. If this occurs, the trouble may be due to:

(a) *Insufficient combustion air.* If the heater is enclosed in a confined



A furnace may make excessive noises while warming up or cooling off.

area, grilles or ducts should be provided to supply ample air. Enclosed heaters may depend upon small openings for their air supply, and when these become clogged, they must be cleaned.

(b) *Stopped up burner throat or air shutter.* These may be removed and cleaned, or if necessary, replaced.

(c) *Improperly functioning vent.* If insufficient air is being drawn up the flue, there may not be enough air for combustion entering the lower part of the heating unit. Check the vent for obstructions, and make sure that the draft hood opening is clear.

(d) *Equipment with incorrect orifices for the Btu value of the gas being used.* Manufacturers' markings generally tell for what types of gas the burner is designed. If necessary, the orifices may be changed.

Sometimes a burner will roar or vibrate. When this happens, it is likely due to *a resonant air column condition.* The air flow characteristics in the combustion chamber may be corrected by means of baffles. The manufacturer can generally recommend the correct type and placement of such baffles to eliminate this trouble.

A furnace may make excessive noises during warming up or cooling off. This is generally caused by *lack of free or equal contraction rates in furnace casings.* Check to see if the noise is being caused by the inner or outer casing. This may be done by removing the inner casing and seeing if the noise still persists when the furnace heats or cools. If the trouble seems to be with the outer casing, the following checks may be made: (1) Determine whether the floor is square. (2) See if the headers clear the outside casing by at least ¼ in. or if they make contact at any time. (3) If noise still occurs after eliminating these two possibilities, brace the section of casing where the movement occurs.

Inner Casing Noise

If the noise is caused by the inner casing, the following steps may be taken: (1) Take out the inside casing and locate the point where metal movement occurs. Pad these spots with strips of asbestos about 1½-in. wide and thick enough to fill the space between the inner and outer casings. Fasten these strips with metal screws through both casings. (2) When asbestos is not available, fasten metal screws through the two liners. Do not pull the two walls together so that they touch, however.

Customers may complain of cold floors, and attribute this condition to your heating installation. While this does not truly fall under the category of heating equipment service, it must be investigated and corrected to maintain the customer's goodwill. The points to look for are:

(a) *Air leakage through and around doors and windows.* This may be eliminated by weather stripping the poorly fitting parts.

(b) *Air leakage under the molding at the base of outside walls.* This may be removed and the gap may be caulked with a suitable compound.

(c) *Open stairways, ceiling registers, and grilles* may be robbing heat from the rooms which the customer desires to keep warm. Close these off wherever possible. ■

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LOOK TO RONEY FOR LP GAS AND NH_3 EQUIPMENT

By Harold C. Hood
Field Editor

E. G. Carey of Gas Heat, Portland, examines one of the two burners mounted on the fire box on the Smithwick dryer. The combined output of the two is 1 million Btu/hr.

LPG Helps Smithwick Concrete Meet Regulations for Crackproof Blocks

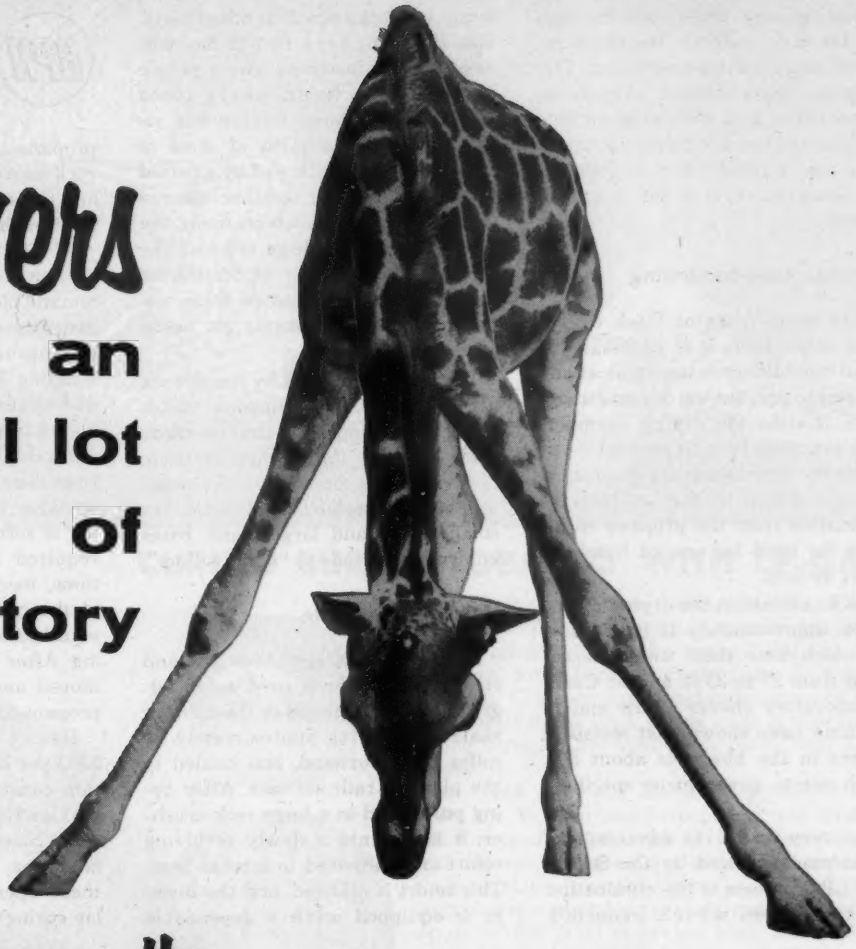
New regulations set up by the Corps of Engineers forced the Smithwick Concrete Products Co. to search for a more efficient means of curing concrete blocks. A propane-fired kiln was the answer to the problem.

STRINGENT new regulations by the Corps of Engineers last year caused Smithwick Concrete Products Co. of Portland, Ore., to search for a more efficient, easily controlled means of curing concrete blocks. Blocks had to be lighter and stronger, and the range of permissable moisture content in cured blocks had been narrowed. The gigantic Dalles dam, 60 miles up the Columbia river from Portland, was one of the projects to which Smithwick was furnishing blocks, and specifications for material going into its construction were rigid. Anti-cracking qualities stipulated by the government were difficult to obtain with the conventional concrete-curing equipment in use by block companies. LPG provided the solution. Company engineers joined forces with E. G. Carey of Gas Heat Inc., Portland, and designed an installation which is said to be the most efficient system of its kind in the Northwest.

The drying chamber at Smithwick is a room 34 ft long, 12 ft wide, and 8 ft high, totally enclosed by insulating blocks and reinforced concrete. Two thousand 8 x 8 x 8-in. blocks, or 4000 partition units, may be dried simultaneously in this propane-fired kiln. Heat is thermostatically maintained at 500° F and is furnished by two Ransome burners capable of producing a total of 1 million Btu. Heat is evenly distributed throughout the stacks of blocks inside the dryer by a blower which turns at 2000 rpm and effects a complete change of air in the chamber every 50 seconds. A return system takes the air back to the heating chamber, which is a cubicle compartment approximately 6 ft on a side built on to the side of the kiln. Air is reheated here and recirculated into the drying chamber.

Concrete block men must exercise extreme caution so that their products are not case-hardened during the drying process. When this happens the outside dries prematurely and the inner material never completely cures. This condition generally results from a drying atmosphere that is excessively hot and dry. Gas Heat relates that during the initial opera-

Covers an awful lot of territory



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tion of the new dryer extreme care was taken to maintain the temperature at exactly the correct point. The company experimented with lower temperatures and worked up to 500° F, which appeared to be the optimum. LPG heat proved easy to regulate and temperature, once set, remained constant.

Prevents Case-hardening

With some types of block dryers using other fuels it is necessary to install humidifiers or use applications of steam to prevent too dry an atmosphere inside the drying chamber. Such practices help to prevent case-hardening. Smithwick has discovered that the water in the products of combustion from the propane eliminates the need for special humidification devices.

Blocks remain in the drying chamber for approximately 12 hours, during which time their weight is reduced from 27 to 23 lb apiece. Careful laboratory checks at the end of this time have shown that moisture content in the blocks is about 8%, which meets government specifications.

One very definite advantage of blocks manufactured by the Smithwick LPG process is the elimination of severe cracks which frequently occur in blocks dried in other ways. Gas Heat reports that it has witnessed many instances where people have bought improperly cured blocks, and serious trouble has resulted. The installation of most of these blocks was followed by a period of rain. When the weather cleared and the sun beat down on them, the blocks developed large cracks. The newly installed dryer at Smithwick has completely eliminated these unhappy occurences among its customers.

Items manufactured by Smithwick are numerous. The company makes almost anything that can be made from concrete. Its primary function, however, is the manufacture of building blocks, prefabricated bases for small tanks, and larger tank bases known in the trade as "horse collars."

Haydite Aggregate

Because of its light weight and strength, Haydite is used as an aggregate. This is mined in the form of shale from pits approximately 30 miles from Portland, and hauled to the plant in railroad cars. After being pulverized in a huge rock crusher, it is fed into a slowly revolving retort and subjected to intense heat. This retort is oil-fired, and the burner is equipped with a dependable

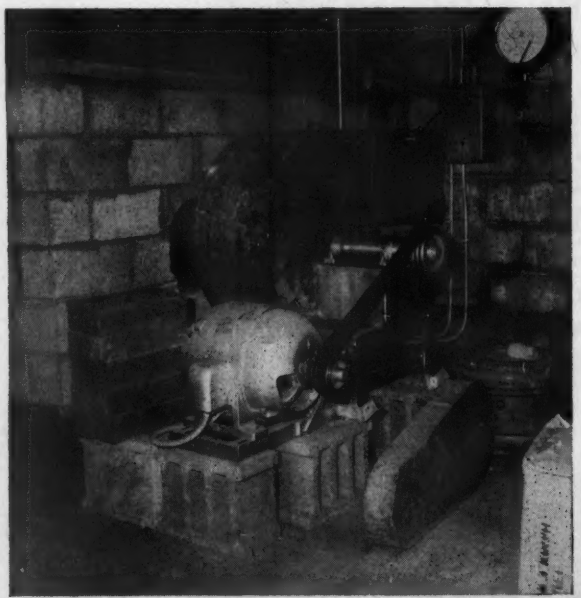
BPN staff report

propane igniter. The shells of the rock particles expand in the retort, and the strongest and lightest aggregate in the Northwest results.

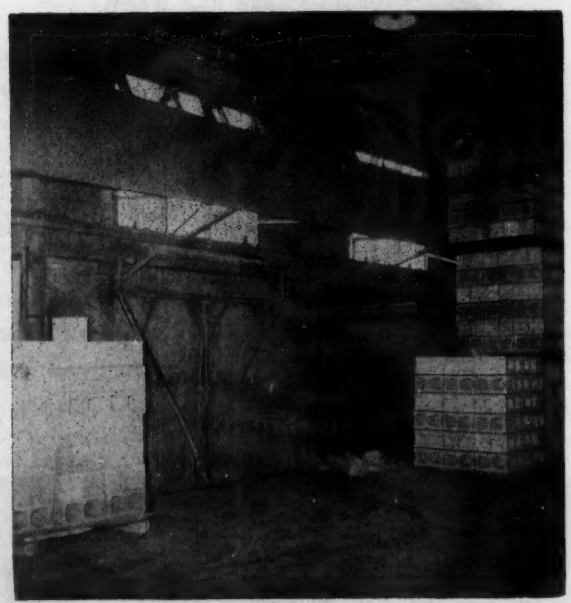
A mixture of expanded Haydite, cement, and water is fed into an automatic block-making machine which pours the mixture and vibrates it into all corners of the mold. Three 16-in. building blocks are cast at a time, and about three batches are completed in one minute.

Freshly cast blocks are removed from the molds and placed in a steam chamber where the first stage of curing is accomplished. This treatment, required by government specifications, increases the tensile strength of the blocks and reportedly is the equivalent of two weeks of air curing. After eight hours, blocks are removed and rolled on carts into the propane-fired drying chamber.

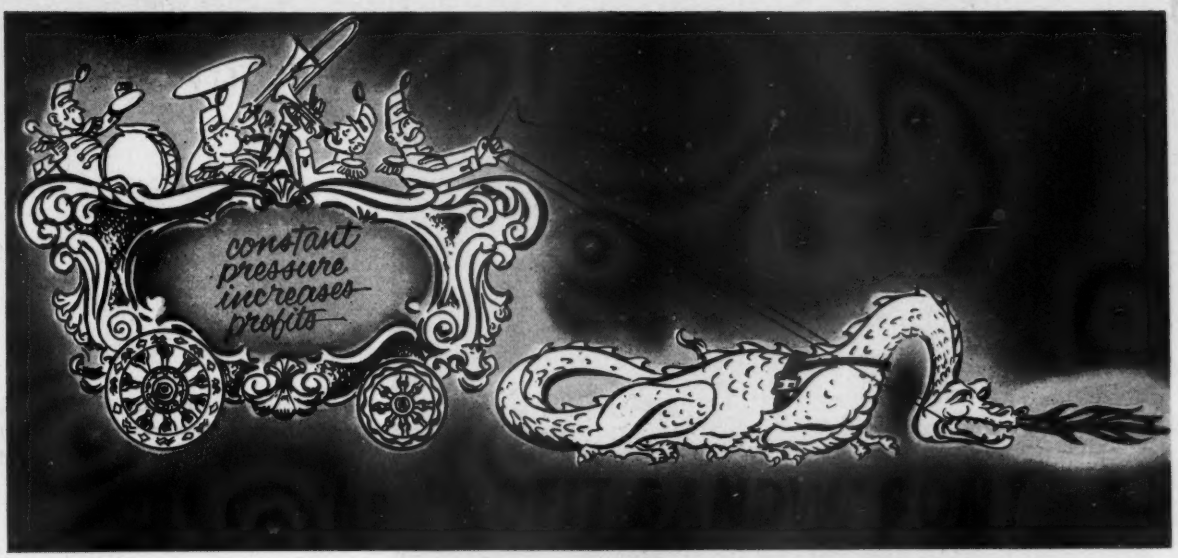
Using approximately 10 gal. of LPG per hour, the Smithwick operation constitutes a desirable account for Gas Heat. There are several concrete block companies in the Portland area, and Gas Heat hopes to aid these operations by installing similar curing units. ■



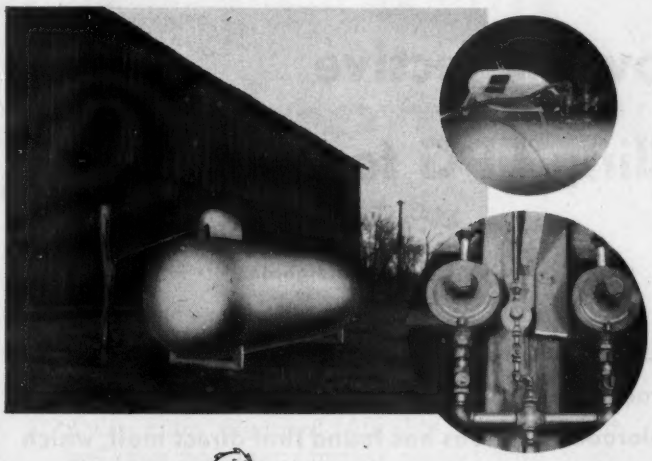
This electrically driven blower forces hot air from the combustion box at the left into the kiln. Temperature of air entering the kiln is carefully controlled, and is recorded by means of the recording thermometer shown mounted on the wall.



Door to the LPG-fired kiln. The blocks at the right have been removed from the kiln and their moisture content is approximately 8 to 10%. This reduction in moisture accounts for a weight decrease of 4 lb per block.



CURING BURLEY TOBACCO WITH LP-GAS



"During the past three years the Blue Grass Butane Company, Lexington, Kentucky, has been making commercial tobacco curing installations in the heart of the Burley Tobacco Belt. Last year, 1954, our Company completed installations of 120 Kur-moR, LP-Gas fired, curing units in nine large curing barns on the Mereworth Farm, near Lexington.

"Since each barn was 285 feet long by 54 feet wide, the ¾" main line barn piping was divided into four quarters, and each quarter was equipped with Honeywell Automatic Controls, and a second stage regulator from the *Delta Control Unit*. The second stage regulator on each quarter handled up to 350,000 BTU of gas per hour, and a grand total of 1,400,000 BTU's for the entire barn.

"A 1,000-gal. Delta Propane Tank equipped with the first stage of the *Delta Control Unit* set at 10# pressure was installed at each barn, and piping was made directly to the second stage regulators in the bar.

"The performance of the *Delta Control Unit* on these installations were outstanding. Proper manifold pressures were maintained at all times when under full load when tank percentage of fuel was low and frosting heavily. We heartily recommend the *Delta Control Unit* for its ruggedness and unsurpassed precision performance on commercial gas loads of this kind."

BLUE GRASS BUTANE CO., INC.
C. E. Augspurger
President

DELTA'S
BLU-BLAZE
LP-GAS
SYSTEM

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DELTA'S BLU-BLAZE SYSTEM GIVES YOU CONSTANT BURNER PRESSURE!

You get CONSTANT BURNER PRESSURE at appliances when you install Delta's BLU-BLAZE System with the exclusive Delta Control Unit. This eliminates costly, constant service calls to adjust appliances. You pocket the savings on service costs.

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MANUFACTURERS OF PRESSURE VESSELS AND OIL FIELD EQUIPMENT

Jack Dale, manager of Colorado Rural Gas Co. in Greeley, points to the area where his ditch burning operations will be concentrated for the next year.

Direct Mail Proves Effective In Selling LPG for Flaming

By Gene C. Creighton

While agricultural flaming isn't new in the central Colorado valley, the use of propane for this operation is. Colorado Rural Gas has found that direct mail, which allows space to stress all the advantages of LPG, is a most effective means of selling fuel for flaming.

INTENSIVE promotion of the advantages of propane for ditch-burning was so successful through the second half of 1954 that Colorado Rural Gas Co. did a dollar volume in excess of $3500, according to Jack Dale, manager of the Greeley, Colo., firm.

While ditch and alfalfa burning with oil has been practiced in the rich central Colorado valley for more than five years, the use of propane for burning is new, according to Mr. Dale. "Our experience has been that even 'die-hards' who were disappointed with other fuels in burning out irrigation systems become enthusiastic believers when the advantages of propane are demonstrated," Mr. Dale says. "For that reason our promotional program has consisted for the most part of direct mail, explaining the system utilized, inviting the farmer to call in for a demonstration and then capitalizing on the chain reaction of interest which normally follows. Our experience has been that at every ditch-burning operation there are always half a dozen or more farmers from adjoining plats who throng to watch the operation and who, as a matter of course, become convinced of its effectiveness."

Newspaper advertising has been added to the picture since last May when Colorado Rural Gas, which operates in four cities in central Colorado, jumped into the market. While the educational job of convincing farmers of the practicality of L. P. gas-fired burning was being carried out, Mr. Dale equipped the firm with a Heberlein ditch burning rig, built by an Ault, Colo., manufacturer, which features such advantages as a platform mounted on top of the tank and a boom equipped with twin nozzles which is capable of swinging 180°. This equipment was decided upon, according to Mr. Dale, because of ready interchangeability of tanks of various capacity and the efficiency of its twin heads. "Our burning equipmen can utilize tank sizes from 150 to 500 gal.," he says. "This provides for a ready flexibility according to the size of jobs at hand, which both the customer and ourselves can appreciate.

Ditch-burning operations for the most part have been confined to a radius of 25 miles from Greeley, 52 miles north of Denver, although for 1955, Mr. Dale anticipates moving much further into the field. There has been to date no attempt to land con-

Now you can expand your area of profitable operation *without* any additional trucks . . . you can serve more regular customers and still offer fast spot delivery service. The answer is Motorola 2-way radio. Equipped with this powerful profit tool, you maintain *constant* contact with every driver up to 40 miles away . . . send the one closest to that unexpected order *directly* there. Credit inquiries from drivers are answered in seconds and your toll calls will be practically eliminated.

Every truck saves costly travel time and expense and handles more deliveries every day, with Motorola 2-way radio. Most important, the faster service gives you an edge over competition that earns more and better-satisfied customers.

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Motorola produces the greatest variety of 2-way radio equipment available—proven to outlive any other. The most complete national service set-up—700 Authorized Service Stations — is on call 24 hours a day. Motorola furnishes more LP gas 2-way radio than *all others combined*. You can have Motorola 2-way radio on the terms you want—cash purchase, installment, lease with or without equity. Under one plan Motorola 2-way radio equipment is approved for terms by the LPG Credit Corp. with as little as 10% down payment. A Motorola communications engineer will give you all the facts. Write, phone or wire TODAY.

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"The best costs you less — specify Motorola."

tracts for state or county work, because the surprisingly good reception of private farmers absorbs the entire output capacity of Colorado Rural Gas Co.'s staff of three operators. However, this market will be explored in a forthcoming expansion.

Extremely careful demonstrations, combined with a serious drouth which crippled agricultural production in the Greeley area during the past summer, produced the highly successful season concluded in the fall of last year, Mr. Dale indicated. Paradoxically, Colorado Rural Gas enjoyed a heavy flow of additional income from ditch burning at a time when almost all other interests associated with farming were experiencing lean profits.

"The reason, of course, was simply that farmers were actively using every method to realize the last possible drop of water," Mr. Dale says. "For this reason opening up of the irrigation ditches by burning out the weeds was of paramount importance. The fact that there was a drouth was, of course, much in our favor, permitting us to burn the ditches down to the bottom without difficulty."

An interesting feature in the use of equipment was Mr. Dale's decision to move the rig by means of a four-wheel-drive jeep, instead of the familiar tractor. Many tests indicated that the jeep provided better service over both highways and rough ditch banks, with smooth, efficient handling considerably expediting burning operations. "Some of the resistance which we encountered at the outset was directly traceable to the fact that in the past ditch burning was handled by almost anyone who could be hired to drag the burning heads along a ditch," Mr. Dale grinned. "We point out to farmers that there is a considerable amount of technique and skill involved in burning weeds to the soil level, getting every patch, and otherwise doing a thorough job. Now we think we have built up a reputation for expertness which will help substantially next year."

Colorado Rural Gas has charged for ditch burning on an hour and gallon consumed basis, which has appeared most equable, Mr. Dale points out. Average gas consumption on the typical burning job has been around 100 gal. an hour with a tank pressure of 100 psi maintained. With this 100 psi pressure at the burning heads, maximum heat is maintained with full operating economy. Any increase in the pressure is automatically followed by a disproportionate increase in gas consumption, Mr. Dale has found.

For 1955, the Colorado L. P. gas organization is looking forward to a similar volume of alfalfa burning, a field which has a much larger potential than ditch burning. Testing in the area has indicated that a thorough burning of alfalfa stubble every two years is adequate for most purposes, and thus the service can be spaced over a substantial period of time.

Offices in Longmont and Keenesburg, Colo., have also been planned, with the addition of weed-burning equipment at each station, which will spread the business over a considerably larger area. ■

A Comparison Is Made and . . .

GAS BEATS ELECTRICITY

AMMUNITION for the LPG dealer in the "Battle of the Fuels" has been provided by the recent findings of the Committee on Comparison of Competitive Services of the AGA. Based on information volunteered by 92 gas utilities serving 61% of the total gas meters in the United States, the actual figures of the comparisons are published in a 26-page booklet available from the AGA.

To obtain comparisons between gas and electric cooking and water heating, the committee made studies in large groups of homes and had several agencies, working independently of each other, run tests to determine maintenance and operating costs.

Gas came out ahead on all counts. Cost of initial purchase of appliances, installation, operation, and maintenance were all items that were lower for gas than for electricity. The average purchase price of 30-gal. gas water heaters in operation was $109, whereas the average for the comparable 66-gal. electric heater was approximately $45 higher. The monthly operating cost of this gas water heater on the basis of 38-gal. per day usage was $2.69, whereas its electric counterpart consumed $5.15 worth of electricity during the same period. This 1.9 ratio climbed even further out of proportion as the amount of hot water per day went up. At the 100-gal.-per-day level, electric water heaters cost 2.3 times as much to operate as do gas units.

Cooking costs followed the same general pattern. The owner of the most popular gas range paid $218 initially, whereas his neighbor who favored electricity paid $270.41 for the most popular electric model. This represents $52 saved by the gas user at the very beginning. To have his gas range installed he paid approximately $6 less than his neighbor who already has three-wire service in his home, and he paid only 1/10th of the installation bill that his neighbor who switched from a gas range to electric cooking paid to have three-wire service run into his home and have his range connected.

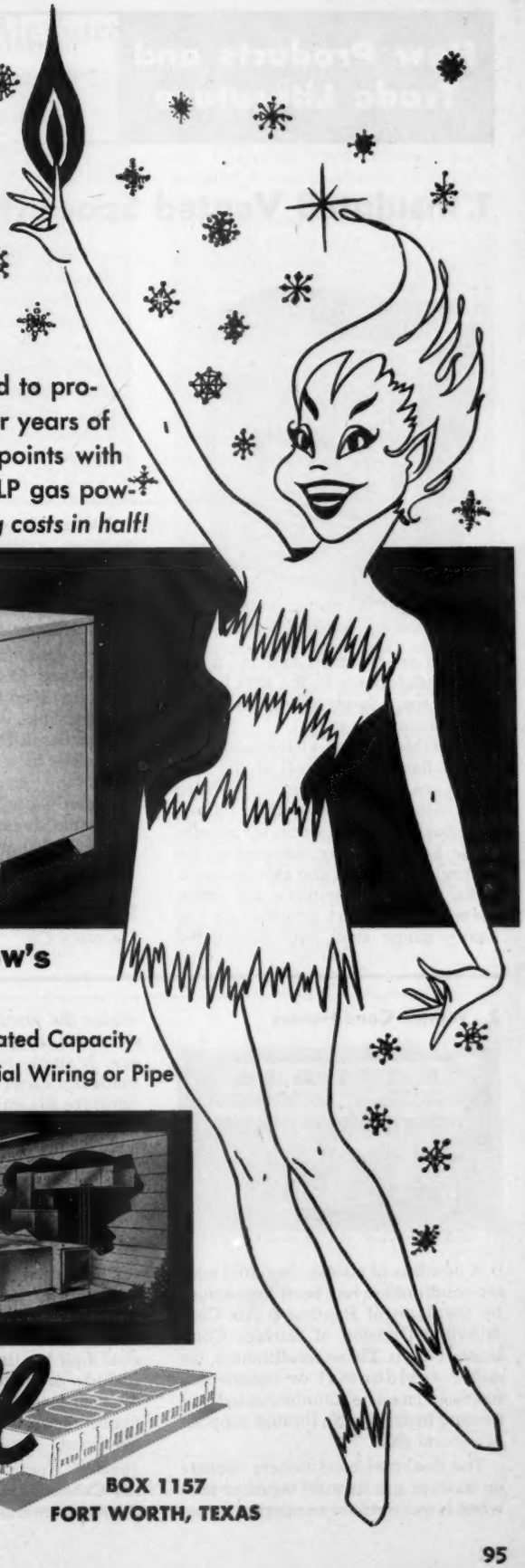
The man with the gas range also saved on his cost of operation over the year. His bill over the 12-month period totaled $11.76 less than that of his neighbor using electricity for cooking. Also, his maintenance bills were less than his neighbor's by $4.34.

The pamphlet includes a list of 73 towns and cities across the nation and shows how much more it costs to cook and heat water by electricity in those localities. These amounts run anywhere from $16.32 per year more, as is the case in Nashville, to $150.24 which is the additional amount paid by the average electrical user in Lawrence, Kan.

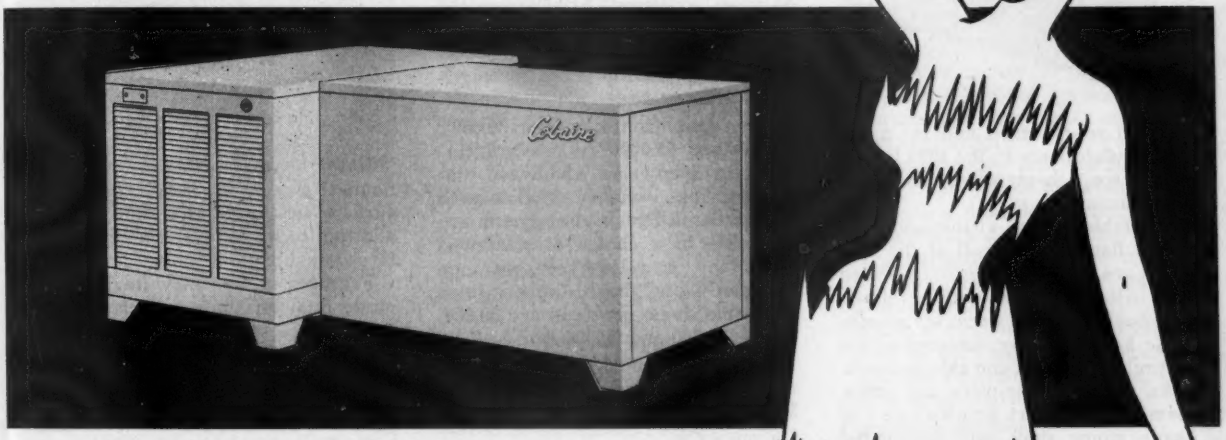
These figures are based on a hot water usage of 50 gal. per day and an average amount of cooking.

Several good sources for comparative fuel costs are listed in the back of the pamphlet, and can be put to good use by the gasman in an area where electric competition presents a serious problem.

we're COOLING with GAS



At last, nature's magic fuel has been harnessed to produce a new standard of effective cooling. After years of research and development, Cobell Industries points with pride to new Cobaire, a practical natural or LP gas powered air conditioning system that *cuts operating costs in half!*



Revolutionary Cobaire is tomorrow's air conditioning . . . TODAY!

- Cuts Operating Costs 50%*
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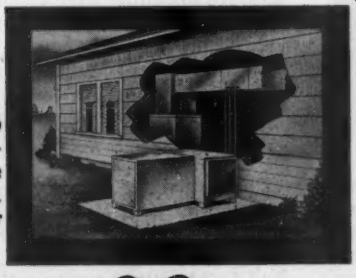
Cobaire is mounted on a concrete slab adjacent to house or building. Outdoor installation eliminates all inside noise. Perfect for old homes or new. Available in 3 to 10 ton sizes for every need.



Get full details on new, different Cobaire. Write or wire for literature.

Cobell INDUSTRIES, INC.

BOX 1157
FORT WORTH, TEXAS

*Compared with similar electrically powered unit

New Products and Trade Literature

To secure further information on products or new publications, fill out the coupon and mail, indicating by number the information desired.

1. Insulated Vented Space Heaters

Seven re-designed and re-styled gas circulators are in the 1955 line of vented space heaters announced by the Coleman Co.

Available in both visible and non-visible flame models, all of the new units are insulated with foil-faced glass fiber. The insulation reflects heat back into the warm air stream while keeping outer surfaces of the unit relatively cool and safe to touch.

An enlarged one-piece top grille, seam-welded heat exchanger of heavy gauge steel, and corrugated heat converter are combined with Coleman's traditional airflow cabinet design for greater circulating power, the manufacturer reports.

A new sawed slot cast-iron burner carries a lifetime guarantee.

The heaters are equipped with built-in draft diverters and pressure regulators. A 100% safety pilot is standard on propane units, optional on units for natural, mixed or manufactured gases.

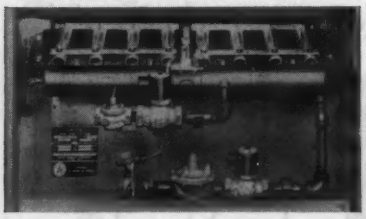
A three-speed "Directionair" blower is an accessory. Attached to the back of the heater, it directs a stream of air across the column of heat rising through the top grille, forcing it down to floor level.

Open grille front models in 30,000-, 40,000- and 55,000-Btu sizes are finished in deep-tone, shadowed mahogany, baked enamel. Models with visible flame Pyrex glass fronts are available in a choice of shadowed mahogany or a lighter two-tone "Golden Glow" finish. Input ratings of visible flame models are 30,000, 40,000, 55,000 and 70,000 Btu.

All models are 30-in. high and 16-in. deep. Width varies from 20 to 38⅛ in.

Coleman Co.

2. Winter Conditioners



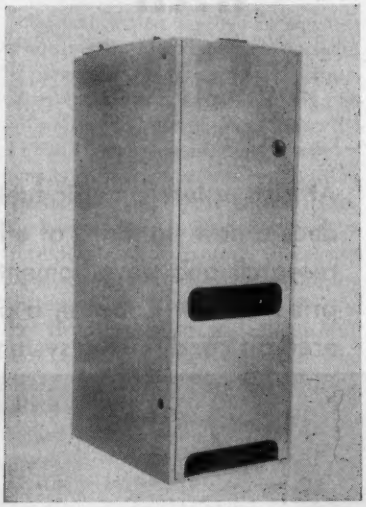
A new line of all-gas, dual fuel winter conditioners has been announced by the Janitrol Heating & Air Conditioning Division of Surface Combustion Corp. These conditioners, for either residential or commercial heating, insure uninterrupted gas heating in areas with limited supplies of natural gas.

The dual fuel conditioners operate on natural gas in mild weather and, when lower outdoor temperatures increase the heating load, are changed over to L.P. gas from standby storage. A single room thermostat automatically controls the indoor temperature for either fuel. Changeover of fuels requires operating a hand switch. An accessory control switch is also available to automatically change fuels when the weather drops below a predetermined outside temperature setting. No other adjustments are necessary.

These dual fuel winter conditioners twin-up with Janitrol cooling conditioners in matching cabinets to provide year around comfort. Other dual fuel heating equipment models include propeller-type unit heaters, duct furnaces, and blower heaters for mounting on the floor or suspending overhead.

Janitrol Heating & Air Conditioning Division Surface Combustion Corp.

3. Counterflow Furnace



Holly Manufacturing Co. announces a new counterflow forced air furnace in 105,000-Btu input as an addition to its established line of forced air upflow models.

Features of this new furnace include dual air filters which are located at the top of the unit and are removable without disturbing the blower. The counterflow furnace is easy to service, since the draft hood need not be removed nor vent disturbed to service motor and blower.

An airtight seal is provided at floor level by an accessory base which may be used on all types of floors. Grouting or sealing are eliminated on zero clearance.

The 105 counterflow furnace is equipped with a high-capacity blower which gives maximum air delivery and thorough heat distribution. Gas lines can be connected through the top or side of the casing and a summer switch is located on top of the furnace for easy accessibility from the front. Dimensions are 20 1/16-in. wide by 28⅛-in. deep by 58¼-in. high.

Holly Manufacturing Co.

4. Two-burner Incinerator

The most distinguishing feature of the Brule incinerator, according to the manufacturer, is the design which provides for two burners. It is also refractory-lined throughout.

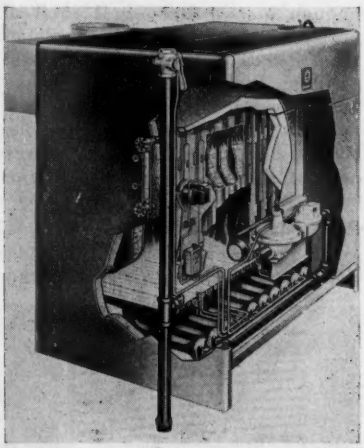
Some of the outstanding features are:

Air mixes in double outlet flue, preventing overheated pipes. It has a 7-in. flue collar for 5-in., 6-in., 7-in., or larger flue connection.

Other advantages are: full 2¾- and 4½-bushel capacities, ventilated base for use on any floor, large ash-pan with handles, and automatic gas pressure control. An air cooled outside jacket keeps unit cool to the touch while a cast iron drying shelf keeps refuse off burners, prevents clogging, and speeds incineration of charge. It has an insulated steel charging door which closes automatically.

Brule Incinerator Corp.

5. Gas-Fired Boilers



Two gas-fired boilers introduced by American-Standard combine compactness with quick-servicing and low-cost installation. Both the G-6 and G-4 boilers are constructed so that durable 20-gauge steel jackets can be assembled after water, gas and steam piping has been installed.

The G-6, with its input capacity range of 650,000 to 5,200,000 Btu/hr can be roughly classified as an industrial or commercial boiler well suited to schools, apartments, and office buildings.

The G-4, with an input range of 180,000 to 600,000 Btu/hr, can be used in large homes, churches and small industrial and commercial buildings. Flexibility of the two boilers, used singly or in battery, eliminates fuel waste and the initial expense of an oversized boiler.

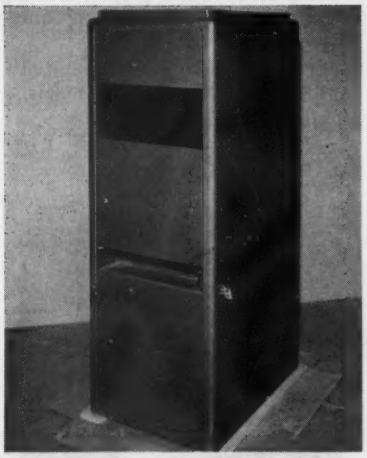
Both boilers have integral draft-hoods located at the rear of the jacket enclosure. Overall height for the G-6 is 65 in., while the G-4 stands only 47½ in. high.

Hundreds of pin-like projections found on each center section of both boilers provide a heating surface which could be equalled only by a much larger flat-surfaced section. These projections extract the greatest possible amount of heat from rising flue gases, resulting in maximum heating efficiency from minimum fuel consumption.

Both the G-6 and G-4 are constructed of durable cast iron; both comply with ASME specifications and are approved by the American Gas Association.

American Radiator & Standard Sanitary Corp.

6. Forced-Air Furnace



The Ward forced-air furnace, recently introduced nationally, is efficient and economical. In building this furnace Ward engineers have adopted a new die-formed heating element which increases efficiency and that means lower gas bills, at the same time eliminating expansion and contraction noise.

In addition, a new dynamically balanced over-sized blower assures ample forced air capacity, and the latest electronic zone and clock thermostats are employed. It is small and compact, and is available from 75,000- to 300,000-Btu. No added charge for liquefied petroleum gas models.

Ward Heater Co.

7. Space-Saving Conditioner

A space-saving, gas-fired horizontal winter air conditioner has been placed on the market by the Heating-Air Conditioning department of the A. O. Smith Permaglas division.

Ranging in sizes from 60,000 to 140,000 Btu input, it has a ceramic-coated heat exchanger to resist rust and corrosion from hot gases and moisture. This employs the ceramics-on-steel principle.

Controls of the unit are fully enclosed; there is a variable speed blower, and dual flow outlets to allow flexibility of installation.

The horizontal can be mounted in attic, in a crawl space, or below a basement or utility room ceiling, employing a horizontal outlet draft diverter to save additional headroom.

Cooling equipment for use with this furnace is available.

Permaglas division, A. O. Smith Corp.

For notices of more new products and trade publications turn to page 159 of the Power Section.

BPN

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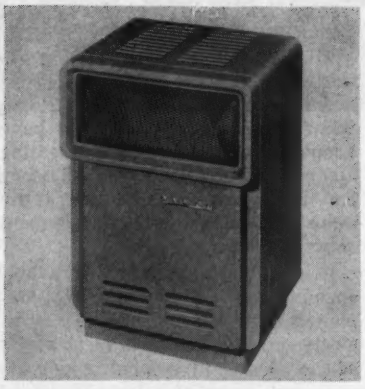
8. Vented Circulator

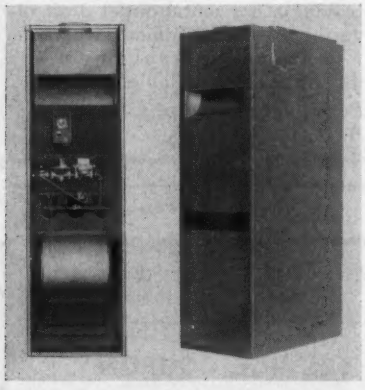


Two new heaters—vented circulator models of 14,000 and 20,000 Btu input capacity—are 1955 products of Temco Inc.

The models feature a "television-screen" upper grille, combining attractiveness of design with maximum heating efficiency. The upper grille delivers radiant heat, making possible the utilization of radiant energy on circulator type heaters. Circulating heat is delivered from louver openings on the top of the heater. Cold air is drawn in at the base of the heater.

Temco Inc.

9. Upright Furnace



A product for the heating field has been announced by Sequoia Manufacturing Co.

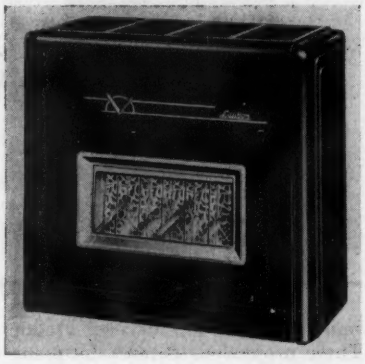
A forced air furnace called the "Pacer," is an upright with an extremely narrow width that makes it particularly adaptable to the common water heater-furnace closet type of installation often used by developers of large, moderate-cost projects. Its heavy steel case is finished in blue hammerloid enamel.

New models are fitted with stamped steel slotted burners; rubber-mounted, multi-blade centrifugal blowers of extra large capacity, and welded steel, wafer-section heating element. Filters are standard equipment.

"Pacers" will be available initially in 75,000-and 105,000-Btu models.

Sequoia Manufacturing Co.

10. Radiant Circulator



There are three specially stressed features to the new, vented, radiant circulator which is made by the Lawson division of the United States Stove Co. These are:

A full-floating, rubber-mounted blower which spreads the warm air across the floor and eliminates stratification before it has time to rise to the warmer, upper part of a room.

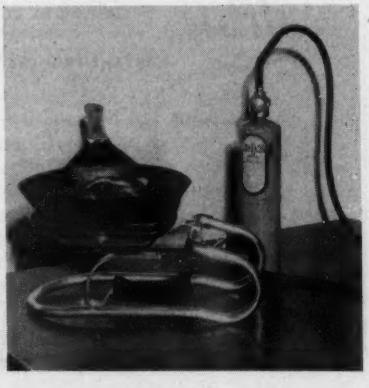
An "Unitrol" combination automatic thermostat and 100% safety pilot ⅜ in.

The new design of the radiants which makes possible a far wider spread at an even temperature of the radiant rays.

The development of 25% more heat, 60% greater distribution of heat and less cost per unit as compared to the Btu output are claimed by the manufacturer.

Lawson division, United States Heater Co.

11. Midget Heater



Outdoorsmen will be interested in a new portable radiant L.P. gas heater, a product of Perfection Industries Inc.

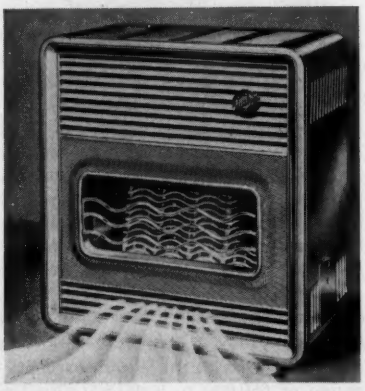
Called the "Perfection Infra Baby," this multiple use heater is a satchel-size power plant which supplies instant radiant LPG heat for a hundred different needs.

It will broil fish or game and other foods, in a boat, in the woods, anywhere. It boils coffee, water, tea, fries all kinds of foods, heats cabins, duck blinds, leantos, ice fishing huts, boats, trailers and tents. It also dries clothing, blankets, gear, and will thaw motors, guns, pumps, pipes, frozen game, and foods.

With a 12,000-Btu rating, the "Perfection Infra Baby" is still small enough to take up only 1 sq ft of packing space. Made of heavy plated steel, it will withstand the toughest handling. Radiants are easily cleaned and are replaceable if damaged. Bottled gas containers are rechargeable. A 1-lb container lasts up to three hours. Containers are available in sizes from 1 lb to 100 lb.

Perfection Industries Inc.

12. Gas Circulator



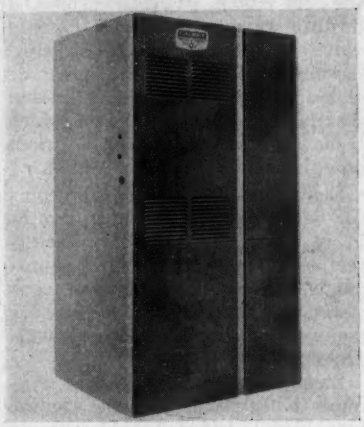
Many innovations are featured in the new "Fireplace" vented gas circulators now being marketed by the Quaker Manufacturing Co., heating division of Florence Stove Co. Warm floor comfort is assured with a new automatic "twin" floor level blower. New "air-steam" construction substantially increases warm air circulation.

Improved cast iron raised port burner is guaranteed 20 years and gives increased efficiency on all types of gas. Double porcelained heat chambers carry a 20-year guarantee.

Available in three capacities of 35,000, 50,000 and 65,000 Btu input. Each size is equipped with the new Minneapolis-Honeywell "Adatrol" 100% safety shutoff.

Quaker Manufacturing Co.

13. High Capacity Furnace

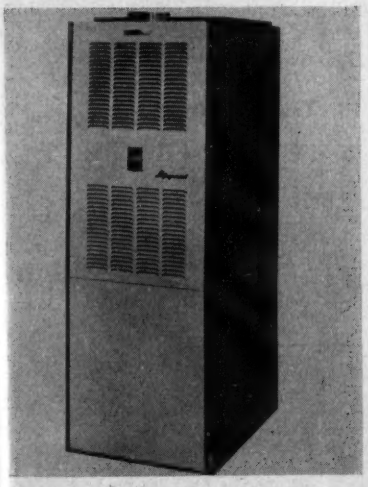


The Columbia Burner Co. announces three "Gem" gas fired furnaces known as the CGA series, Highboy, Lowboy, and Counterflow. The Highboy and Lowboy are available in five sizes, from 70,000- to 200,000-Btu inputs; the Counterflow in three sizes, 70,000- to 135,000-Btu inputs.

Each unit has sectional, welded tubular, ribbed constructed, heat exchanger, for quick efficient heat transfer. Heat exchanger has 10-year warranty. All units feature front position built-in draft diverters, long life slotted cast iron burners. Blower for winter comfort and summer ventilation is readily accessible on track for servicing. The cabinets, flush on all sides, with front accessibility, are heavy gauge steel in lustrous baked gray enamel finish.

Columbia Burner Co.

14. Forced-Air Heating



Day & Night Division, Carrier Corp., has announced the addition of a new "Lifeguard" series to its forced air heating line.

The unit is designed to appeal to the new home and modernization markets. It contains several unique features including the exclusive "Pyro-ceremic Armorcoat" on the heating element. This new protective coating assures the owner against rust-out or burn-out.

In addition it has "Dual-Safe" controls in which are included a 100% safety pilot and a high-limit control against excessive temperatures, plus an extra 100% watchguard control which will shut off all gas to the unit in the event extraordinary conditions impair the functioning of the standard controls.

The "Lifeguard" series is available in three models: the "Upflow" (UFA-L) for Btu input ratings of 75,000, 100,000, 135,000, 170,000 and 200,000; the "Downflow" (DFA-L) for Btu input ratings of 75,000 and 100,000; and the "Horizontal" (HFA-L) for Btu input ratings of 85,000, 105,000, and 130,000. All units are approved for use with natural, manufactured, mixed, and L.P. gases.

Day & Night Division, Carrier Corp.

15. Multivalve Assemblies

A series of "Rego" multivalve assemblies designed to facilitate on-the-premises filling of L.P. gas ICC cylinders has been announced by the Bastian-Blessing Co. Claimed to save the operator time and money, these new valve units are said to avoid any supply interruption, reduce cylinder stocks and to make metered gas systems more profitable.

Six models are available in the 7555 series multivalve assembly line, including styles with and without fuse plugs and a choice of filler connections. Their design is compact, the valve protruding just about 5 in. above cylinder spud. Bodies are forged brass, with ¾-in. male NPT cylinder connections and POL service outlets. Liquid is carried through the baffle tube into cylinder, avoiding any interruption of gas service. Relief valve capacity is said to be ample for all ICC cylinders containing 150 lb or less.

The Bastian-Blessing Co.

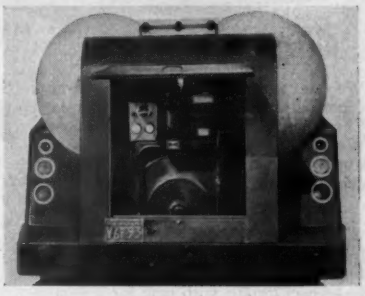
16. Range

A small oven range with a large, deep cooking top and broiler, is being offered by Comstock-Castle Stove Co.

Known as the "Economy Champion Rangette," the range meets all needs of the smaller kitchens. It is attractively presented in a new bulletin together with a full line of commercial ranges and griddles, available upon request.

Comstock-Castle Stove Co.

17. Tank Truck



A twin-barrel L. P. gas delivery truck designed with low center of gravity, time saving control cabinet, bucket-type hose reel, protected wiring, straight-run piping and streamlined skirting, is now available from the Downingtown Iron Works division of Pressed Steel Tank Co.

The Downingtown tank truck meets all requirements of ICC MC-330 Specifications, as well as the ASME code for 250 lb. This compliance with MC-330 design, the manufacturer states, eliminates complications with all present and future laws, and permits a dealer to service customers he may have across the state line.

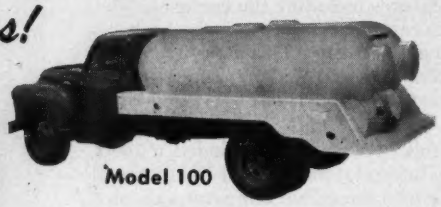
Twin-barrel design provides a pay load capacity of 1406 gal. propane at 60° F.

All delivery controls have been grouped within the rear cabinet in order to save the operator's time at

World's *Finest* Propane Delivery Units

at Lower Prices!

Your Choice of 5 Models
Twin or single
600 to 2200 WG.



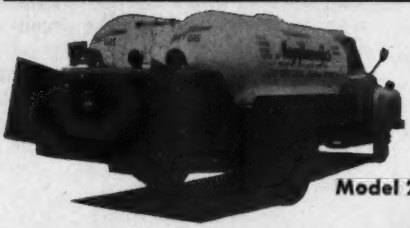
Model 100

Model 300

$3,647.00

Twin propane unit *(pictured above)* is priced complete, ready to use, mounted on a brand new 1955 Chevrolet chassis, PTO, shaft, Viking mechanical seal pump, 50' ¾" filler hose, lights, painted shiny aluminum over red oxide, piped complete and includes Federal tax.

HUNDREDS OF OUR UNITS ARE NOW IN SERVICE
THROUGHOUT THE WORLD



Model 200

IMMEDIATE DELIVERY on any Models (several sizes available in each Model) mounted and piped COMPLETE on chassis furnished by us.

We are authorized truck distributors (International factory LPG equipped, Chevrolet, Ford, GMC, Dodge or Reo.) We can save you up to $900.00 on new trucks. Each unit is tested and ready to deliver gas when it leaves our shop.

●

We also SAVE YOU MONEY on Tank Installation Trailers—Domestic Systems, 115 to 1,000 W.G., and specially built two-wheel trailers with tank for servicing farm tractors with LPG and anhydrous ammonia.

Model 150

• **EASY TERMS AVAILABLE — (No red tape such as financial statements, etc., necessary.)**

WRITE, WIRE or PHONE FOR PRICES TODAY
WE SAVE YOU MONEY

WHITE RIVER DISTRIBUTORS, INC.
Phone 570 • Batesville, Arkansas

METERS
Repaired and Handled with Care

A COMPLETE REPAIR PICK-UP AND DELIVERY SERVICE

We are making regular deliveries and pickups along the Eastern Seaboard on a three weeks schedule.

By knowing in advance the types and numbers of meters to be repaired, we reserve trucking space for pick-ups, and return them in forty to sixty days at no additional cost for transportation.

Price Lists and Trip Schedule Mailed on Request.

STANDARD METER REPAIR CO.
Fifty Years Experience

P. O. Box 322
Shelton, Connecticut
Telephone: 5-3448

each stop. Included are remote controls for clutch, power take-off and throttle; remote-controlled Okadee valves on liquid lines, which must be shut off before cabinet door can be closed; eye-level printing meter; and manual or electric hose reel which feeds hose straight through a door on either side of the rear cabinet.

Lights and wiring more than comply with ICC requirements. Two 5-in. rear stop lights and two rear directional signals are standard equipment. All wiring, lights and conveniently located junction boxes are vapor-, moisture- and corrosion-proof.

Straight-run piping with a minimum of fittings is possible because twin-barrel design provides ample space for piping between the two tanks and the truck frame. Actually, all piping, the tanks, tank cradles, skirting, and cabinets are built as one complete unit which can be quickly and easily transferred to a new chassis when desired.

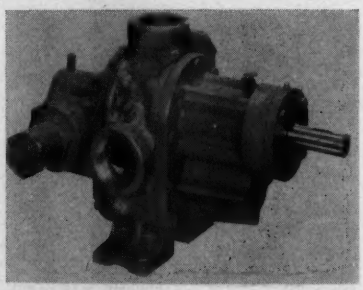
A single recess in the side of each tank mounts the rotary gauges, pressure gauges and thermometers where average liquid level is recorded. Internal-type relief valves eliminate the need for moisture-collecting recesses at the top of the tanks.

Truck loading is done through the curbside cabinet, and when desired, the truck pump will load the truck or evacuate a customer's tank through the meter. Streetside cabinet provides additional storage space and a place for an L. P. gas fuel tank when propane carburetion is used.

Water capacity of the Downingtown twin-barrel tank truck is 1700 gal. Weight, including pay load and full equipment, but not including chassis, is less than 12,700 lb.

Downingtown Iron Works Inc.

18. Truck Pump



A new LPG gas pump for tank truck service is now on the market, manufactured by Geo. D. Roper Corp. It is designated as 3603 LPRV No. 2 and is designed for handling 30 gpm. The Roper Corp. has made L. P. gas pumps for many years.

1st Year after Year after Year... Dearborn..

IN L-P GAS HEATER SALES!

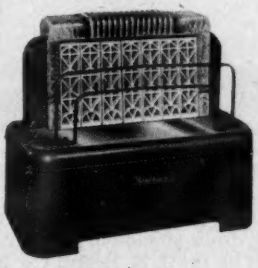
Yes, consistently, year after year, Dearborn has led the field in L-P gas heater sales. To be *first*, all over the nation over all these years, means that Dearborn Area Heaters must have a high standard of excellence. They are top favorites with customers and dealers alike for service-free performance.. rugged dependability.. low-cost operation.. safety and convenience. Such customer-pleasing Dearborn features as the famous Cool Safety Cabinet, meter-miser High-Crown Burner and long-lasting Glo-Brite Radiants have made many thousands of warm friends — and every Dearborn owner sells Dearborn! That's why Dearborns on *your* floor will mean customers at the door.

DVRCK SERIES
Dearborn Vented Radiant Circulator with Cool Safety Cabinet

DRC SERIES
Dearborn Unvented Gas Area Heater with Cool Safety Cabinet

DVCK SERIES
Dearborn's Vented Gas Area Heater with Cool Safety Cabinet

DVC-12
Dearborn Vented Circulator



DR SERIES
Dearborn Radiant Heaters

SPECIFICATIONS FOR DEARBORN AREA HEATERS

Model Number	Number Radiants	Input BTU/Hr.	Width In Inches	Depth In Inches	Height In Inches	Vent Height In Inches	Approx. Shipping Wt. In Lbs.
DVRCK–30A	6	30,000	26"	15"	32 9/32"	19 7/32"	105
DVRCK–45A	8	45,000	31"	15 7/8"	35 17/32"	19 5/16"	147
DVRCK–65A	10	65,000	34½"	17 7/8"	38¾"	25¾"	183
DRC–12A	3	12,000	13½"	9"	19"		27
DRC–20A	4	20,000	18⅛"	11¾"	26"		53
DRC–25A	5	25,000	20"	12¼"	27"		60
DRC–35A	6	35,000	22⅛"	12 13/16"	28"		70
DR–20	5	20,000	18½"	10½"	19 5/16"		36
DR–25	6	25,000	20½"	10½"	19 5/16"		38
DR–30	7	30,000	22½"	10½"	19 5/16"		42
DVC–12A	None	12,000	13¼"	9⅞"	19 13/16"	14¾"	32
DVCK–20A	None	20,000	22¾"	17"	30"	16 31/32"	83¾
DVCK–40A	None	40,000	31"	20 7/16"	35 17/32"	19 5/16"	120
DVCK–60A	None	60,000	34½"	22 7/16"	38 25/32"	25¾"	160

REGIONAL SALES OFFICES

1700 W. Commerce St., Dallas, Texas
884 N. Halsted St., Chicago, Ill.
3625 S. Grand Ave., Los Angeles 6, Calif.
1355 Market St., Mdse. Mart, San Francisco, Calif.
565 Western Ave. N.W., Atlanta, Ga.

Dollar-Wise it's Dearborn

Dearborn® STOVE COMPANY
1700 WEST COMMERCE ST., DALLAS, TEXAS

DEARBORN "GLASS-GUARD" AUTOMATIC GAS WATER HEATERS

Another high-quality Dearborn product, fast-selling and profitable. Finished in sparkling white enamel with gold trim — glass-lined tank assures clean, rust-free water throughout life of heater. Magnesium anode rod is standard equipment — burner and pilot factory equipped for use with L-P gas. These good-looking quality heaters carry a 10-year warranty — available in 20, 30 and 40 gallon sizes.

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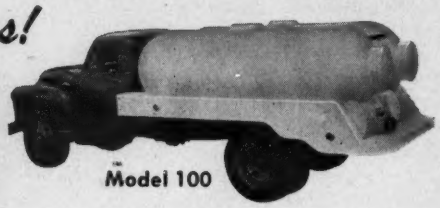
at Lower Prices!

Your Choice of 5 Models
Twin or single
600 to 2200 WG.



Model 100

Model 300

$3,647.00

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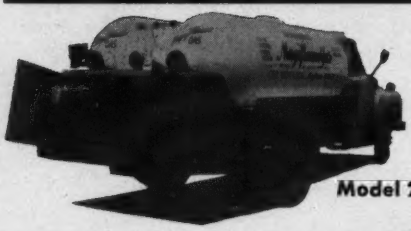

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Phone 570 • Batesville, Arkansas

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Repaired and Handled with Care

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P. O. Box 322 • Shelton, Connecticut
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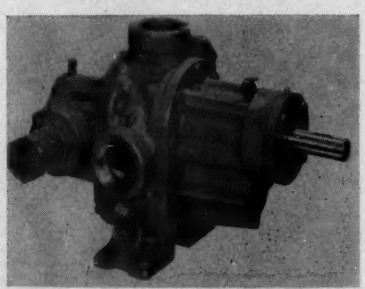

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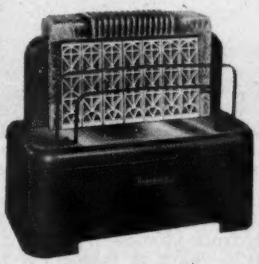

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Another high-quality Dearborn product, fast-selling and profitable. Finished in sparkling white enamel with gold trim — glass-lined tank assures clean, rust-free water throughout life of heater. Magnesium anode rod is standard equipment — burner and pilot factory equipped for use with L-P gas. These good-looking quality heaters carry a 10-year warranty — available in 20, 30 and 40 gallon sizes.

PROTECT YOUR LP-GAS CYLINDERS FROM RUST

use ROSKOTE Foot Ring Mastic

The foot ring of the cylinder at the left in the above photograph was coated with Roskote Foot Ring Mastic. The one on the right, which was *painted* at the same time, has already begun to blister, rust and pit. Roskote Foot Ring Mastic gives LP-gas cylinders lifetime protection against corrosion caused by moisture, acids, alkalies and electrolysis in soil. It withstands heavy abrasion and the most severe vibration, distortion and bending.

This rust preventive mastic—many times thicker than any paint—forms a tight bond with the metal and covers it with a tough, horny film. A most effective moisture barrier, it does not oxidize, craze, crack, alligator, check or loosen under any strain. It won't become brittle at temperatures as low as —40°F. Won't sag or slide at those as high as 375°F. Applied cold, in minutes, by either brush or spray, it is non-toxic—safe to use without fear of burning or blistering.

Leading Manufacturers Protect Their Footrings with ROSKOTE

Three of the leading LP-gas cylinder manufacturers — HARRISBURG STEEL CORPORATION, STEEL COOPERAGE DIVISION the SERRICK Corporation, WEATHERHEAD — know the value of protecting their cylinder foot rings from the ravages of costly corrosion. They use Roskote. By assuring life-long corrosion resistance to their product, they add to the confidence of both LP-gas dealers and ultimate consumers.

Send for Information

Specify Roskote Foot Ring Mastic on your next cylinder order. And, give your own old cylinder foot rings this protection for just a fraction over 3c per sq.ft. For complete information and free sample write:

ROYSTON
LABORATORIES, INC.
BOX 112-E, BLAWNOX
PITTSBURGH 38, PA.

District Offices
P. O. Box 1084
N. Decatur Station
Atlanta, Georgia

P. O. Box 1753
Tulsa, Oklahoma

Distributor
Fine Products Company
6240 Ogden Avenue
Berwyn (Chicago), Illinois

Among the important features which are claimed for this pump are the following:

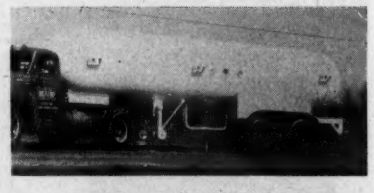
1. Precision lapped-face seal. No adjustment or maintenance required.
2. Hardened chrome alloy gears, running in axial hydraulic balance.
3. Four Hi-lead bronze flanged bearings which may be easily and economically replaced to return pump to original efficiency.
4. Extra large grease reservoir for reduced maintenance. Infrequent greasing required. All main bearings greased at one application. LPG does not circulate in grease chamber and wash away grease.
5. Induction hardened and ground shafts. Drive shaft is stainless steel.
6. Ball bearings on drive shaft are heavy duty for carrying drive and thrust loads. Sealed against road dirt and water.
7. Built-in safety valve.

The pump must be installed according to accepted good practice for the L. P. gas industry. An external relief valve with discharge to the pump supply tank must be installed and set at a lower pressure than that of the built-in safety valve on the pump.

The net weight is 75 lb and the shipping weight is 81 lb.

Geo. D. Roper Corp.

19. Single-Barrel Transport



A bonus payload up to 1000 gal. may be hauled by the new single-barrel trailer transports for L.P. gas and anhydrous ammonia, recently introduced by the J. B. Beaird Co. Inc.

Developed after months of market research and product engineering, the 7200-gal. transports for L.P. gas and 6165-gal. models for LPG and anhydrous ammonia have been designed for maximum strength and payload capacity with minimum gross weight and operating cost.

The transports have been stripped of all dead weight, with only mud guards, tire carrier, bumper, and stick lights added to the under-carriage and tank. Frameless construction and low center of gravity in the models has not only lightened gross weight but increased maneuverability. Maximum strength and safety as well as greater capacity is assured by design improvements in the actual tank, which is built of high tensile steel, completely stress relieved and

AMERICAN-Standard ANNOUNCES A NEW YEAR'ROUND AIR CONDITIONING PACKAGE

Gas-Fired
Heating-Cooling Unit

Heating*	Cooling	
75,000 Btu	2 hp	—
100,000 Btu	2 hp	3 hp
125,000 Btu	2 hp	3 hp
150,000 Btu	2 hp	3 hp

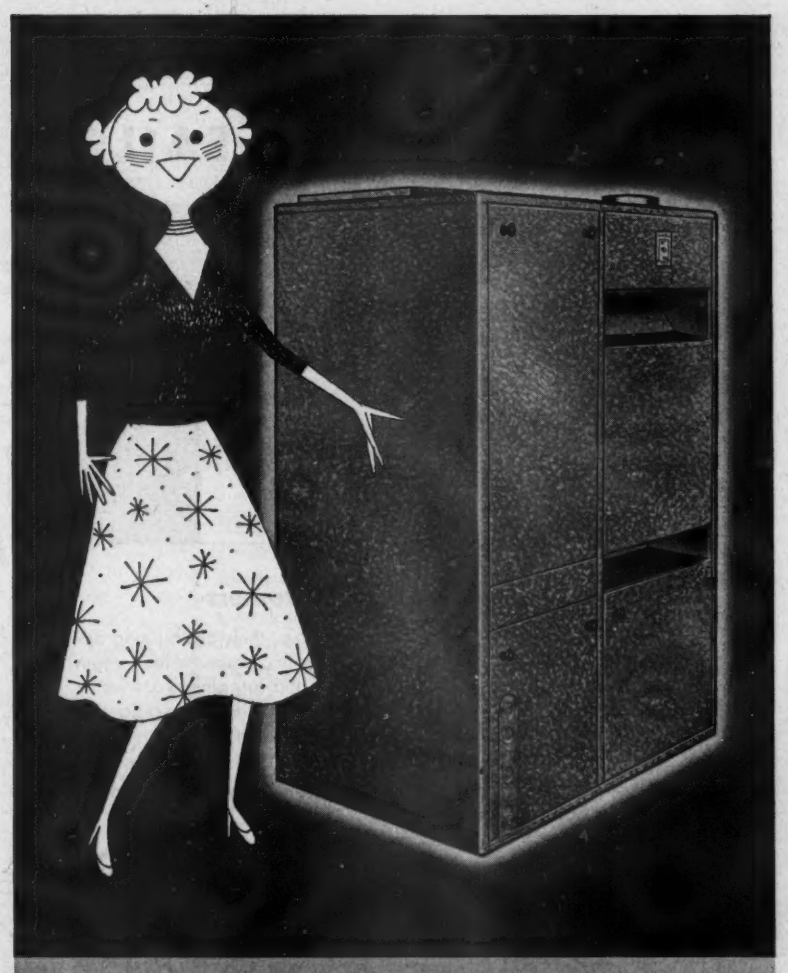
*Btu input

Here—at competitive price—is a famous-brand, top quality year 'round unit that offers a variety of heating capacities with choice of 2 hp *or* 3 hp cooling.

Compact in size, ruggedly built, this model performs efficiently in any style of home . . . can be installed in utility room, closet or basement with only a minimum of floor space required. The complete comfort it provides is a strong selling point for the builder, and a strong incentive to present home owners to replace their old furnaces *now* with year 'round air conditioning.

Available with summer-winter thermostat and manual or automatic summer-winter changeover damper. Unit may be obtained less cooling circuit if desired. The cooling circuit is covered by American-Standard Five Year Protection Plan.

Ask your American-Standard air conditioning distributor for full details. He's listed in the Yellow Pages of your classified telephone directory under "Air Conditioning Equipment" or "Furnaces".



FACTORY ASSEMBLED—READY FOR INSTALLATION
Refrigerant circuit is packed separately for convenient handling.

AMERICAN-Standard
AIR CONDITIONING DIVISION
ELYRIA, OHIO
American Radiator & Standard Sanitary Corporation

with 100% X-ray of welded seams.

Time for loading and unloading product is also shortened with the use of 2-in. vapor and liquid piping. Provisions are included to permit an increase in liquid piping to 3-in. diameter, if desired. For greater flexibility, outlets are provided forward of the spare tire carrier for side-front unloading. However, units are normally equipped for unloading at the rear with outlets located on the bottom side of unit.

The J. B. Beaird Co. Inc.

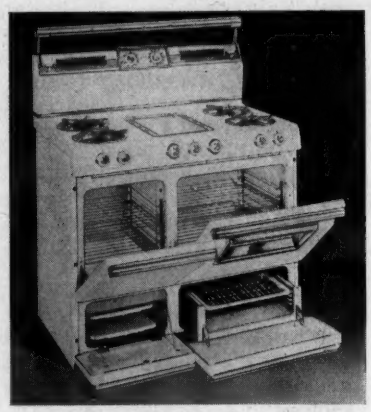
20. Meter Index Box

To provide a clear, unimpeded view of meter indexes on American Meter's new 5B-225 Aluminumcase meters and simplify the work of meter readers, American Meter Co. has recently announced the development of a "Plexiglass" index box. The new box is not affected by ordinary exposure to light or to the elements, making it equally suitable for exterior and interior setting of gas meters.

The index box is molded in one piece of impact and shock resistant plastic. Mounting holes are integral with the box, which is readily attached to the Model 5B-225 Aluminumcase meter which was recently announced by American. The index boxes are standard on 5B-225 Aluminumcase meters and are furnished when requested on American 3B, 5B and 10B Ironcase meters.

American Meter Co.

21. Gas Range



A new-type gas burner is a feature of the 1955 Norge gas range.

The range is 41 in. wide. It has double ovens, divided top working surfaces, top griddles, and cross-top lamps which can be swung down to beam light where needed.

The master oven is 21 in. wide, 15½ in. high, and 18¾ in. deep. It has a picture window. The second oven is 14 in. wide, 12½ in. high, and 18¾ in. deep. It will bake four cakes or pies at a time.

Four years of extensive research and testing went into the development of the new burners on the gas ranges.

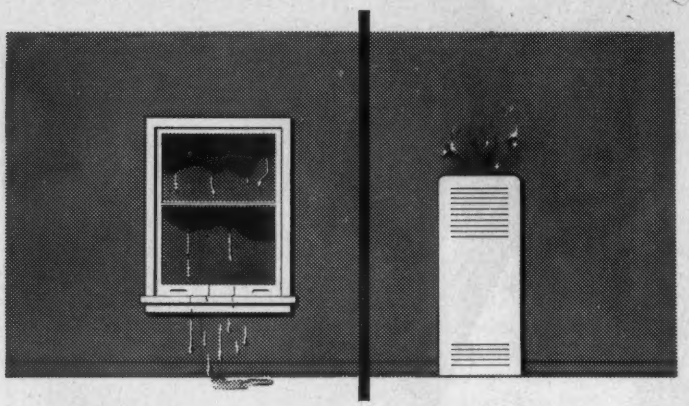
They have controls which select exact cooking speeds from simmer to high. More efficient use of fuel is attained by concentrating heat under the cooking utensil. This eliminates the heat waste around the edge of the utensils and results in a cooler kitchen.

The deluxe gas range, Model G-341, has a three-way griddle top. Removal of this griddle and insertion of a tray and burner provides a fifth top burner. A porcelain cover makes the griddle space available for a working area.

An electric clock-timer automatically controls the master oven and an appliance outlet.

Spill-overs rarely touch the new burners because they are so much smaller than cooking utensils. They

THE VENT THAT FAILED



This Could Happen To Your Customers

... if you're installing incorrect venting for their gas-burning appliances. And blistered walls ... unhealthy, stale-smelling room air ... condensation damage to walls and furnishings are just a few of the things that can happen when inadequate single-wall pipe, uninsulated vent connectors or other improper venting procedures are used.

The result can be equally damaging to your reputation as a dealer or contractor.

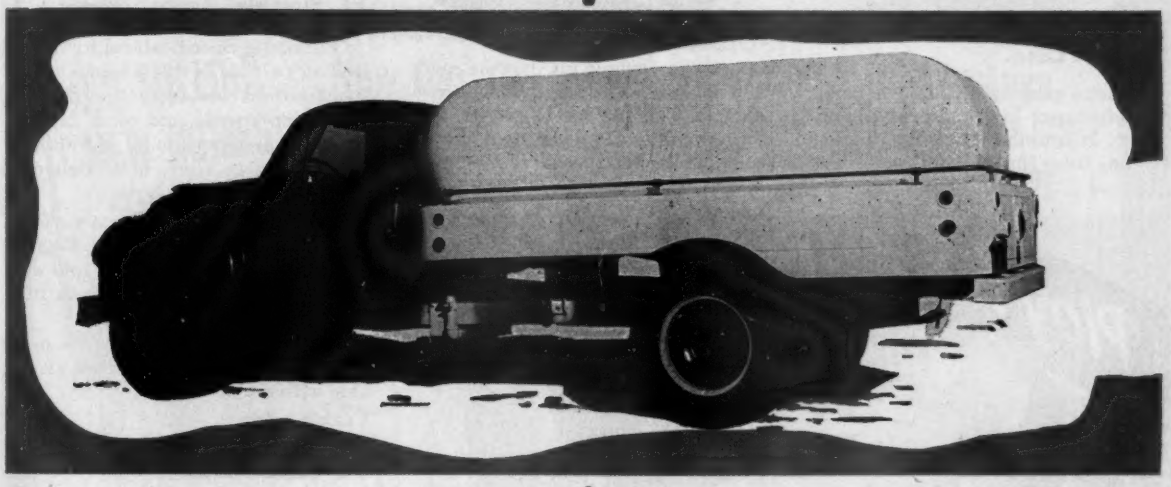
• *Why take chances — install* METALBESTOS

This modern double-wall insulated vent features an **inner pipe** that keeps vent gases hot, assuring a strong draft for their quick, complete removal ... an **outer pipe** that stays cool, preventing dangerous overheating of adjacent construction. And no mastic, tape nor heavy bracing is needed to install sturdy, lightweight Metalbestos — your insurance against customer complaints and time-consuming service calls.

Listed by Underwriters' Laboratories, Inc. as a Type B vent for use with approved gas appliances.

Stocked by principal jobbers in major cities. Factory warehouses in Atlanta, Dallas, Philadelphia, Des Moines, Chicago, New Orleans.

all the features YOU WANT



are in one model of the LMC Home Delivery Unit

Safety — High tensile steel construction with indented fittings give the LMC Home Delivery Unit a safety factor that is unsurpassed in the industry.

Economy — Low initial cost and durable construction that makes for longer life, combine with large capacity pumps to assure you of low operating cost on this and all LMC units.

High Payload — Whatever the capacity of the LMC Home Delivery Unit you select (available in 1400 to 2200 gallons), you'll find the weight of the tank low-in-ratio to total gross weight.

Smart Appearance — The LMC's sleek, streamlined design, accented by the exclusive chrome hand-rail, gives that smart appearance which creates customer confidence.

Buy on the LMC budget plan!

WRITE FOR ADDITIONAL INFORMATION, PRICES AND PAYLOADS

LUBBOCK MACHINE & SUPPLY CO

P. O. DRAWER 1589 POrter 2-5261 LUBBOCK, TEXAS

LMC
LOW MILEAGE COST

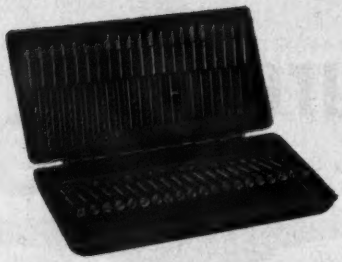
are only 1½ in. in diameter, and can be removed for washing. A set of four of the burners weighs only 2½ lb compared to about 16 lb for a set of old-style burners.

Oven vents on the back panel of the range, chrome shelf supports, and the oven bottom liners also can be removed for cleaning.

Norge division, Borg-Warner Corp.

22. Drill Case

A metal gauging drill case is being manufactured by Anderson & Forrester. It contains 41 drills, ranging in sizes from No. 40 to 80, and offers



a handy, accessible kit that the serviceman can use. Each drill has size stamped into the metal handle, and is arranged in sequence, so it can be quickly identified.

Each drill is fully protected and cannot break in the case. When case opens, the drills move outward so they are easily accessible. Kit is made of durable, lightweight steel and can be carried in hip pocket.

Anderson & Forrester

23. Plumbing Specifications

"Plumbing Specifications for Bulk Delivery Units" is the title of a set of specifications involving the plumbing, pump speeds, and other factors to assure predetermined, guaranteed delivery rates from bulk delivery units.

The information applies to various constant capacities of 18 gpm, 30 gpm and 40 gpm when pumping into domestic tanks having 1¼ x 1¾-in. filler valves.

These specifications have been prepared by Corken's Inc., and are available without cost.

Corken's Inc.

24. Lube Manual

There is a new ACF lube manual ready for servicemen in the L.P. gas industry. It covers lubricants for ACF plug valves and is well illustrated with cross sectional views of these valves, also, considerable detail regarding their construction.

The manual includes subject matter on the forms of ACF lubricants, and descriptions of them, service recommendations, special features of ACF valves and their lubrication, lubricating equipment, and suggestions for ordering.

ACF Industries Inc.

25. Control Equipment

Fisher Governor Co. has issued a price list on its pressure control equipment and it is available to interested dealers upon request.

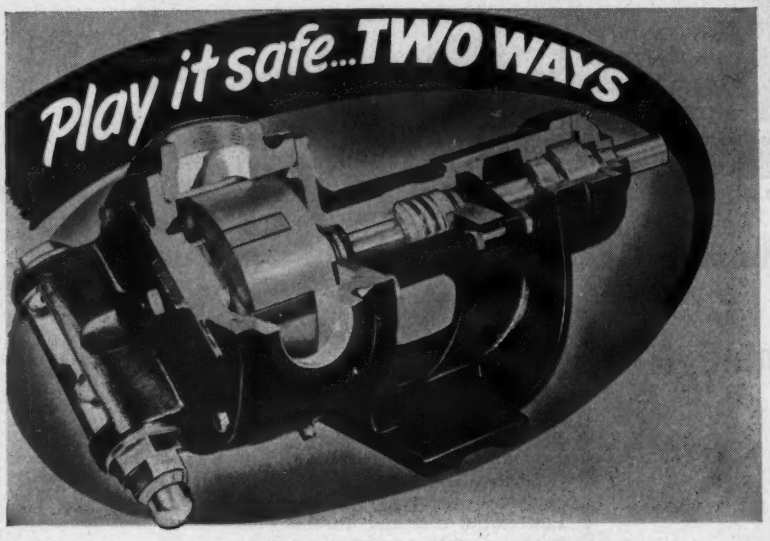
Its effective date is May 1 and the net prices apply to all Fisher L.P. gas regulators, assemblies, and parts.

Fisher Governor Co.

26. Hose Reels

A 12-page catalog covering its complete line of hose reels for L.P. gas delivery equipment has been released by Clifford B. Hannay & Son Inc.

This illustrated catalog features a new section designed to simplify ordering, speed delivery, and assure purchasers of getting the Hannay hose reel best suited for their individual applications.



Invader PUMPS FOR BULK PLANTS and DELIVERY TRUCK SERVICE

DOUBLY SEALED AT TWO POINTS... KEEP L-P GASES IN ...DIRT AND WATER OUT

Protection... double mechanical seals at one point prevent leakage of volatile liquids... double seal caps at another keep out dirt and water... O-Rings instead of gaskets at a third... are design safety features of Invader L-P gas pumps.

The rolling tooth design, an exclusive Invader improvement of the "gear-within-a-gear" principle, provides a positive seal, avoids pulsation, cuts friction to reduce wear, "down" time and power consumption. Important, too, they are rugged enough to serve equally well in your bulk plant or under rigors of delivery truck service.

Write now for further information and prices.

Wayne

"Rolling contact" Gear Teeth used in INVADER pumps

THE WAYNE PUMP COMPANY
SALISBURY, MARYLAND

Headline Hints for Smart Dealers

1.2 MILLION NEW HOMES FORECAST

Utilities Predict 3.6 Million New Gas Customers by 1957

Gas Appliance Producers See 10% Increase During Next 12 Months

TEMCO ANNOUNCES PLANT EXPANSION

GAS WALL HEATER PRODUCTION AT ALL-TIME HIGH AT TEMCO

ALL THE EXPERTS AGREE:

The boom is big, and getting bigger—building up momentum in the interlocked home-building, home-heating industries.

And that's especially good news for Temco dealers, for Temco's in step with the trend—producing more Temco automatic gas heating appliances than ever before, based on last year's sales record.

And among the top Temco units is the outstanding Automatic Gas Wall Heater—

- ★ Installs anywhere, upstairs or down.
- ★ Operates with equal efficiency on natural, manufactured, or L.P. gas.
- ★ Perfect for slab foundation homes.
- ★ Saves floor space; fits right into the wall between standard 16" studding.
- ★ Available in single or dual wall models.
- ★ Avoids costly excavation, expensive duct work.
- ★ 10-year written warranty on porcelain enamel heat chamber.
- ★ Approved by A.G.A., guaranteed by Good Housekeeping.

Guaranteed by Good Housekeeping

TEMCO, inc.

NASHVILLE 9, TENNESSEE

"Gas Heating Specialists for the Nation"

"THE COMPLETE LINE OF GAS HEATING EQUIPMENT"

ROOM HEATERS • FLOOR FURNACES • WALL HEATERS
WARM AIR FURNACES AND AIR CONDITIONING

Temco, Inc.; Department B-724
Nashville, Tennessee

Please send me catalog and complete details on
☐ Temco's Automatic Gas Wall Heaters

Name_____

Firm Name_____

Address_____

City_____ Zone_____ State_____

Complete specifications and illustrations, as well as a clear description of the operational advantages of each model reel, are included.
Clifford B. Hannay & Son Inc.

27. Heater Parts

Sid Harvey's 50-page catalog of gas heating parts presents a line of replacement parts for gas heating equipment. Included in the catalog is information on controls and valves for heaters, oven thermostats, test equipment, and tools and accessories.

The catalog also lists the company's rebuilding services and new material prices.
Sid Harvey Inc.

28. Nameplates

A red and black brochure, "Branded for Life," is being distributed by C & H Supply Co., manufacturer of "Metal-Cals," an anodized, etched aluminum nameplate.

The booklet explains in detail how Metal-Cals may be used for quick, economical trademarking, serial numbering, service labeling, catalog and parts numbering and dial and gauge marking. In addition to telling what Metal-Cals are and how they may be ordered, and demonstrating practical applications of the plates, the new booklet contains a montage layout of typical Metal-Cals.

Metal-Cals are backed by a pressure-sensitive adhesive and adhere to any smooth, cohesive surface, including metals, porcelain, bakelite, polystyrene, glass, plastics, wood, paints, or enamels. They are available in lustrous metallic or matte finish in a wide variety of colors.
C & H Supply Co.

29. Cylinder Tips

A useful handbook of cylinder tips which gives dozens of timesaving, profit-building tips on effective cylinder maintenance and efficient cylinder handling is now available from Pressed Steel Tank Co..

The handbook covers such topics as preparing cylinders for repainting recommended methods of purging cylinders, filling cylinders to the proper density, cylinder-handling devices, and many others topics.

These practical tips are based on actual partices reported by sucessful L.P. gas operators.
Pressed Steel Tank Co.

30. Solenoid Valves

A-P Controls Corp. announces the release of a six-page, two-color bulletin covering the entire range of A-P solenoid valves.

These valves, designed for use with liquids, gases, or refrigerants, can be used for stop and start operations, mixing and blending, metering or measuring, controlling pressure differential, controlling pressure, temperature and flow.

Information on proper selection, features, coil construction, lift ratings, coil frequencies, liquid capacity, and typical applications are listed in the new bulletin.
A-P Controls Corp.

31. LPG Equipment

A 28-page, two-color catalog containing the company's complete line of Rego L.P. gas equipment has been released by the Bastian-Blessing Co.

It is illustrated with drawings and photographs of regulator outfits, cylinder valves, gauges, and many other items manufactured for the LPG industry. Also provided for reader ease is a ready reference guide.
The Bastian-Blessing Co.

LPG equipment manufacturers . . .

ATTRACT NEW SALES

WITH **F.A.C.'S** FLEXIBLE

FINANCING PLAN

A SURE WAY to build extra sales is to make it *easier* for your customers to buy needed equipment. Basically, that is what F.A.C.'s installment sales financing offers you: a sound, business-like solution to your customers' financing problems.

Thus, it gives you an extra sales tool—because it is another reason for prospects to buy from you.

This service is flexible, so you can adapt it to any particular sales situation—depending on the cost of your equipment and the length of the financing term.

We are serving many of the nation's leading LPG equipment manufacturers—every product from huge bulk storage tanks to tiny cylinders. May we tell you about our services? Your letter or telephone call will receive prompt and personal attention.

FAC Plan

FIRST ACCEPTANCE CORPORATION

Minneapolis, Minnesota • 820 Northwestern Bank Bldg. • FIllmore 7711

Discount Bankers Serving Manufacturers of LP Gas Equipment

"...we need steady heat and this flame is burning every color of the rainbow!"

Solve those emergencies before they happen with a MITCHELL VAPORIZER on every important installation.

LET MITCHELL HELP YOU BUILD A REPUTATION FOR DEPENDABILITY WITH

1. A steady supply of gas
2. Uniform pressure
3. Constant heating value
4. No freeze-ups

Minimum Size Storage Required

MITCHELL Vaporizers eliminate the need for oversize storage tanks to meet temporary overload demands . . . hence make possible more compact systems. They are designed for use with all heating, drying or stand-by applications requiring from two to several hundred gallons per hour. (For the larger demands, MITCHELL Vaporizers may be manifolded together.)

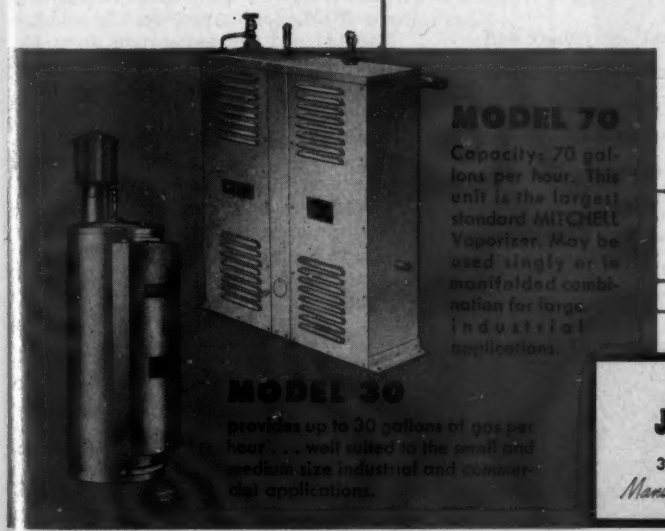
Automatic Selective Control

MITCHELL Patented "Automatic Selective Control" automatically controls the rate of gas evaporation in storage tank to equal the rate of usage. It permits vaporizer to supply either generated gas, or storage gas . . . or both at the same time. Simple, positive safety devices (providing overflow and pilot burner shut-off protection) make MITCHELL units safe and reliable.

Simple Installation

Installation of MITCHELL Vaporizers is simple and easy; and once properly installed, they will give years of constant, trouble-free gas service. All MITCHELL units have been tested and listed under Underwriters' Laboratories' requirements.

UL Listed by Underwriters' Laboratories



MODEL 70

Capacity: 70 gallons per hour. This unit is the largest standard MITCHELL Vaporizer. May be used singly or in manifolded combination for large industrial applications.

MODEL 30

provides up to 30 gallons of gas per hour . . . well suited to the small and medium size industrial and commercial applications.

SPECIFICATIONS

Model No.	Ht. (in.)	Dia. or Width (in.)	Depth (in.)	Shpt. Wt. (lbs.)	Rated Input (Btu./hr.)	Wkg. Pres. (psi.)	Pilot Burner (Btu./hr.)	Rated Cap. (gals./hr.)
30	39½	13¼	....	125	30,000	250	1100	30.0
70	39	32	10	460	75,000	250	1100	70.0

Contact your nearest distributor or write direct to:

JOHN E. MITCHELL COMPANY

3800 COMMERCE STREET • DALLAS, TEXAS

Manufacturers of Fine Machinery for More Than Half a Century

Associations

Current activities of national, regional and state liquefied petroleum gas associations.

Wiggle Elected President Of Utah LPG Association

O. C. Wiggle, Moab, has been elected president of the Utah Liquefied Petroleum Gas Association. The election took place during the group's annual convention and trade show in Salt Lake City.

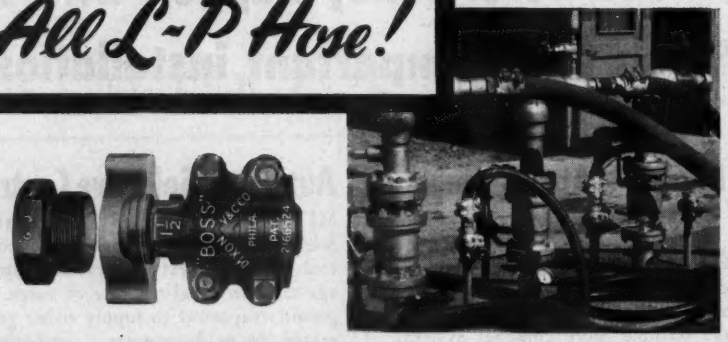
Mr. Wiggle, of the East Utah Gas Co., succeeds Woody Searle, Vernal, Utah. The new president served as vice president during the past year.

Other new officers are Don R. Bolton, Bountiful, vice president; Tom Giblin, secretary; L. M. Haines, and Charles A. Rodman, two-year directors, all of Salt Lake City.

Holdover directors include Harvey Bronson, Heber City; Clarence Snow, Richfield, and Brent Scott, Salt Lake City.

Delegates to the convention heard speeches on liability insurance, metered-gas service, labor-management relations, and current business conditions.

Strongest, Safest Connections...for All L-P Hose!



"G J-BOSS" STYLE X-34
GROUND JOINT FEMALE COUPLINGS

Unequalled in strength, durability and safety! That's why more and more "GJ-Boss" Couplings are being used on hose handling L-P Gas . . . at bulk plants . . . on carloading rigs . . . and other installations. All parts are steel or malleable iron, thoroughly rustproofed. Furnished with super-strong "Boss" Offset and Interlocking Clamps. Ground-joint union between stem and spud forms leakproof, trouble-free seal. Sizes ¼" to 6", inclusive. Also available in washer type, and with companion "Boss" Male Couplings. *Stocked by Manufacturers and Distributors of Industrial Rubber Products.*

DIXON *Valve & Coupling Co.*
GENERAL OFFICES & FACTORY PHILADELPHIA 22, PA. BRANCHES CHICAGO
BIRMINGHAM • LOS ANGELES • HOUSTON • DIXON VALVE & COUPLING CO., LTD., TORONTO
ASSOCIATE COMPANIES BUCK IRON COMPANY, INC. QUARRYVILLE, PA. • PRECISION DRAWN STEEL COMPANY CAMDEN, N.J.

Mirick Heads Department Of Accident Prevention

J. A. Mirick has joined the staff of the Texas Butane Dealers Association, heading a department of accident prevention. Operations of the department will be carried out as services of the association to its members and to the butane industry of Texas, according to J. A. Farrar of Waco, chairman of the accident prevention committee.

Mr. Mirick was selected from a group of several prospective safety directors.

AGA Appoints Stackpole Its Managing Director

Chester S. Stackpole, general sales manager, Heating and Cooling division, Union Asbestos & Rubber Co., Chicago, has been appointed managing director of the American Gas Association, it was announced recently by F. M. Banks, president of AGA. He joined the association June 1, 1955, and will succeed H. Carl Wolf, who resigned earlier this year because of illness.

During his 26 years of service in the utility industry, Mr. Stackpole has been very active in AGA affairs. He has served on and headed many association committees, including chairmanship of the AGA house heating committee, and as vice president of AGA while serving as chairman of the residential gas section.

Minnesota Delegates To Meet At Breezy Point Lodge

Breezy Point lodge, Brainerd, Minn., has been chosen as the site of the summer convention of the Minnesota Petroleum Gas Association.

Here are the features your next delivery unit should have..

AND ONLY AMERICAN GIVES THEM TO YOU

A Custom Unit at Lowest Cost

New super-safe plumbing system increases pumping capacity . . . makes delivery faster . . . saves time and money.

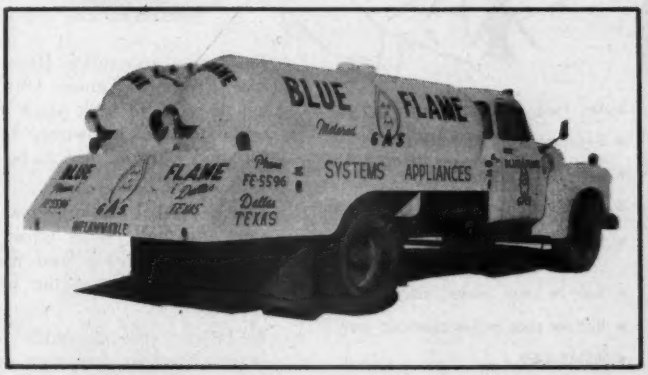
Tanks are locked to truck. Positively won't slip forward . . . a great driver-protection feature in case of accident.

Best balanced units on the road. American delivery units save wear and tear on trucks, give greater safety.

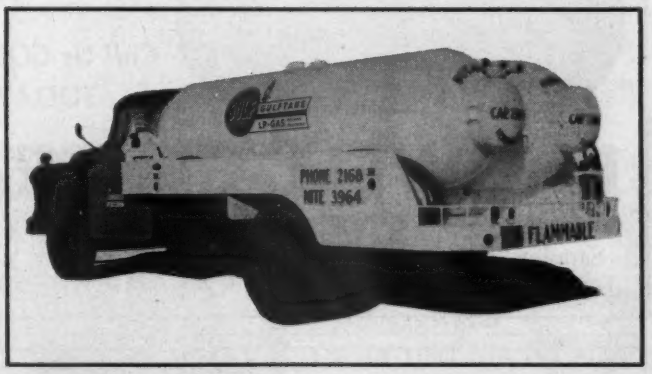
Motor fuel tank and meter mounted in rear . . . can't be side-swiped or sheared off . . . another American safety feature.

Quick changeover . . . when your long lasting American tanks are ready for a new truck, they can be changed over in just a few minutes . . . another American plus.

Good Looks . . . American delivery units are streamlined and good-looking . . . give you the extra safety you need with the smart appearance you want.



Deluxe Model N17. A completely enclosed, compact unit designed with all controls, motor fuel tank, meter, hose reel, power take-off and clutch controls in rear cabinet. Particularly desirable for dealers in northern areas . . . keeps all controls and equipment clean, fully protected from snow, ice or rain.



Deluxe Model B21. Fuel tank, clutch, power take-off, meter and hose located in rear. Gives greater protection to both driver and truck . . . one of the most popular units on the road.

FINANCING AVAILABLE — Write for Information

HEADQUARTERS FOR THE LP GAS DEALER
1 order • 1 shipment • 1 invoice

Telephone STerling 4916

American Tank
AND MANUFACTURING COMPANY INC.

2136 WEST COMMERCE STREET • BOX 5525 • DALLAS 22, TEXAS

Jackson, Mississippi
P. O. Box 2563
Highway 80 East, Phone 3-8726

ALSO AVAILABLE AT:

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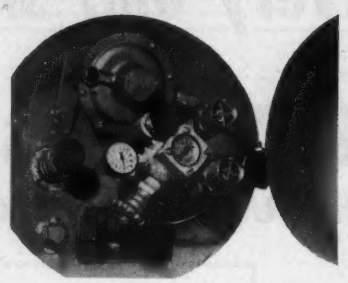
North Miami, Fla.

Littlefield, Texas
306 N. Ripley
P. O. Box 341, Phone 228 MX

I think it's Swell . . . it's a **BAGWELL !**

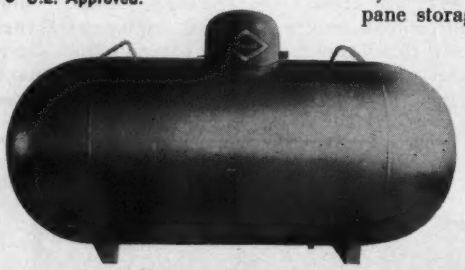


- Dry tank minimizes freeze-up.
- Separate 1¼" fill valve.
- Full width strap legs.
- Large safety-plus orifice regulator.
- One piece extra heavy drawn steel dome.
- Easy to read "senior" size float gage.
- Bottom plug makes cleanout easy.
- ASME U69.
- U.L. Approved.

Customers appreciate Bagwell General Propane Tanks. Our dealers tell us so. And bulk plant operators agree that the consumer has to be satisfied with the tank to be satisfied with his service.

That's one of the reasons we stay alert and make every effort to offer you the best tanks and the fastest delivery possible at the best competitive price.

We've met the demands of many dealers, and we'd like an opportunity to satisfy your needs for propane storage tanks.



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BAGWELL GENERAL STEEL COMPANY

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SAPULPA, OKLAHOMA

Write us: P. O. Box 391

Keep Up with L. P. gas Developments Each Month

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Firm_____

Street_____

City_____ Zone____ State_____

The lodge has fine recreational facilities, according to Gil Bursinger, president of the association. These include golf, fishing, and swimming.

A special program and planned social hours will be an interesting feature for the ladies attending, Mrs. John Mulherin, chairman-ladies activities, stated.

The two-day meeting will be held July 8-9. Those attending will have their choice of lodge or cabin accommodations.

Booths To Form Horseshoe At Kentucky Convention

The Kentucky LP Gas Association's eighth annual convention will meet this year at the Kentucky hotel, Louisville, July 31-Aug. 2. A trade show will be run in conjunction with the convention.

The booths this year will form a horseshoe on the mezzanine floor with the registration booth at the entrance. The ship room will be the site of all business sessions.

To date the majority of the 31 booths available has been spoken for, stated Ronald B. Jones, trade show chairman, but as in previous years, exhibitors of the past year will be given first choice of booth space.

CALENDAR

JULY

July 8-9—Minnesota LPGA. Summer convention, Breezy Point lodge, Breezy Point, Brainerd.

July 10-12—Tennessee LPGA. Convention, Peabody hotel, Memphis.

July 11-13—Mississippi LP-Gas Dealers Association. Management seminar, University of Mississippi, University.

July 31-Aug. 2—Kentucky LP-Gas Association. Convention and trade show, Kentucky hotel, Louisville.

AUGUST

August 7-9—Alabama LPGA. Annual convention, Battle House, Mobile.

August 28-30—LPGA District No. 2 (Southwest). Convention and trade show, Sheraton-Palace hotel, San Francisco.

OCTOBER

Oct. 12-14—Gas Appliance Manufacturers Association. Annual meeting, El Mirador hotel, Palm Springs, Calif.

Oct. 17-19 — American Gas Association - Pacific Coast Gas Association. Combined annual convention, Ambassador hotel, Los Angeles.

Oct. 17-21—National Safety Council. Forty-third national safety congress and exposition, Chicago.

All associations are invited to send in dates of their forthcoming meetings for this calendar.

HOW ®Janitrol HELPS YOU SELL QUALITY... INSTEAD OF PRICE

Now you can stop selling on just price alone! The Janitrol "Crusade For Better Heating" makes it A-B-C easy for you to sell quality . . . offer the type of service you're proud of. Here's how the Janitrol Crusade works for you:

A **Consistent, year 'round advertising . . . like this in all leading home owner magazines alerts the public to the measurable value of Janitrol quality heating . . . obtains thousands of inquiries.**

"Imagine me
...telling my husband about heating!"
I learned you don't have to be an expert to measure heating quality. And one big measure is longer furnace life.
I learned that now you can have a furnace that can outlast the mortgage! The secret is in a new design . . . Duza-Tube
Duza-tube is the heating heart of the Janitrol Deluxe furnace. Now you can forget about burn outs, cracks and rusting. Duza-tube is even better than the steel or cast iron used in other furnaces. That's why these Janitrol Duza-tube models are practically indestructible ...why Janitrol costs you less in the long run.
She was right!

B **This outstanding brochure . . . is sent to all who inquire. Dramatically illustrated in full color, it tells the public *how heating quality can be measured* . . . tells a powerful sales story that pre-sells Janitrol for you.**

C **For your personal presentation this full-color Trans-Vision manual lets you x-ray the interior features of the Janitrol furnace. In just minutes, it makes quality heating easy to understand . . . Janitrol easier to sell . . . makes profit practicable!**

FREE SAMPLES — SEE FOR YOURSELF!

JOIN Janitrol's CRUSADE FOR BETTER HEATING

®Janitrol
HEATING AND AIR-CONDITIONING DIVISION
Surface Combustion Corp., Columbus 16, Ohio

Please let me see more on your complete Crusade Program.

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Address_____

City_____ State_____

The Trade

News of personnel of manufacturers, contractors, and suppliers to the LPG industry.

Honeywell Appoints Appliance Controls Sales Manager

Taylor G. Nelson

Appointment of Taylor G. Nelson as sales manager for the Appliance Controls Division of Minneapolis-Honeywell Regulator Co., as part of the company's expanding production and sales program in southern California, is announced by division general manager E. M. Toussaint.

The division will occupy new plant facilities, now under construction in Gardena, Calif., during the summer of 1955. The new building will add 105,000 sq ft of floor space to the original Gardena plant and division headquarters completed in 1953.

Mr. Nelson, in his new assignment, will be concerned primarily with sales of water controls, but additional appliance controls sales activities are to be brought under his supervision. He was formerly Eastern appliance controls sales manager for Honeywell.

Spratt Appointed by Day & Night As California Regional Manager

Frank R. Spratt, formerly Southern California sales manager, has been advanced in a recent promotion to California regional manager. The change was announced by executives at Day & Night Division of Carrier Corp. Mr. Spratt has been with the company since 1939 except for a three-year period with the Navy during World War II. In addition to his service as sales manager he has represented Day & Night as sales representative in more than half the states in the country.

Also announced were the appointments of Lewis G. Elia and Donald R. Starin to the sales engineering staff.

Mr. Elia has been employed with Day & Night since May of 1951. Prior to his recent promotion he worked in the development engineering department.

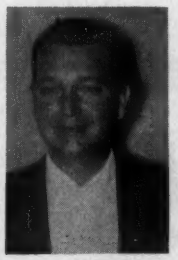
Mr. Starin brings some 21 years' experience in the commercial and domestic air conditioning and refrigeration industry to the company.

McNamar Boiler Appoints Four Sales Representatives

The McNamar Boiler & Tank Co., Tulsa, recently announced the appointment of four new sales representatives.

Frank Batson will cover Kansas, Colorado, and Wyoming area.

Van Berry will be primarily connected with the truck tank division, and will travel Oklahoma, Texas, and New Mexico.



Frank Batson

Van Berry

Preston Hubbard will cover Illinois, Indiana, and Ohio. He will be working from McNamar's office in East Saint Louis, Ill.

Also working from the East Saint Louis office will be Tony Kroupa who will cover parts of the Missouri and Illinois area.

Preston Hubbard

Tony Kroupa

Service Petroleum Appoints Daman, Wolfinger Managers

Service Petroleum Co., Tulsa, announces the appointment of Thomas J. Daman as manager of the Petroleum Products Sales Division, and Harold O. Wolfinger as manager of the LPG Division of the company.

Mr. Daman was formerly associated with the Universal Petroleum Co., Tulsa, while Mr. Wolfinger was with Consolidated Gas & Equipment Co., Denver.

Warren Petroleum Corp. Announces Three Promotions

Several promotions in Warren Petroleum Corp.'s L.P. gas division have been announced.

J. T. Bradley, formerly manager of the division's district office in Houston, is being transferred to Tulsa as assistant sales manager in charge of refinery sales. He succeeds Wayne B. Morgan, who will assume executive duties in connection with another assignment.

H. J. Bourke, who has been on the sales staff in Houston, has been named manager of that district office.

John L. Kirkland has been transferred from the materials control department in the Tulsa office to the L.P. gas division's sales staff and will be located in Houston.

Mr. Bradley joined the Warren organization in 1941 and worked at various plants until he entered the U. S. Air Force in 1943. Rejoining Warren in 1946, he was assigned to L.P. gas sales work in various states before being called into the Tulsa office to manage the L.P. gas division's distribution department, prior to his promotion to the Houston position early in 1954.

Mr. Bourke joined Warren's manufacturing division in 1938, being assigned to its Graham, Okla., plant. He was moved to the Fairbanks, Texas, plant as superintendent in 1941, and then to the Maysville unit of the Garvin county plants as superintendent in 1948. He was transferred to the L.P. gas division's sales staff in 1953 and assigned to Houston.

Mr. Kirkland joined the Warren organization in 1947, being assigned to the materials control department.

Neftzger Appointed Manager Of Magic Chef Sales Division

Donald R. Neftzger, who has been in the sales department of Magic Chef Inc. for nine years, has been promoted to manager, Rocky Mountain Sales Division, it is announced by Kenneth O. Dupree, Magic Chef's general sales manager.

The Rocky Mountain Sales Division was recently formed by the company to include Colorado, Wyoming, Montana, North and South Dakota, and Nebraska. Division headquarters are 4498 East Colorado Ave., Denver.

EVERYBODY IS TALKING ABOUT–

Weathco

FIRST with a "crimped case" regulator

Diaphragm cannot tear because there are no screw or bolt holes

Truly, the very finest regulator ever made

Note these important advancements:

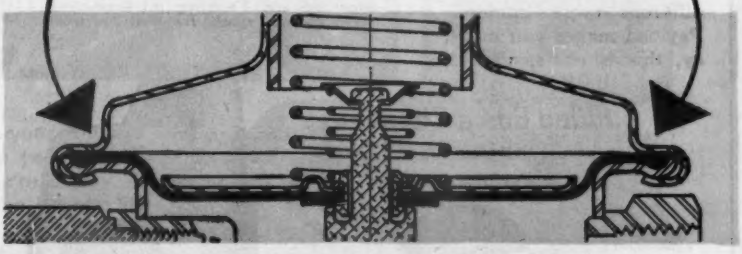
"CRIMPING" ELIMINATES NEED FOR SCREW OR BOLT HOLES—it is now impossible to have leaks at the flange . . . torn diaphragms are gone forever.

LONGER LIFE ASSURED—because specially shaped, molded diaphragm with formed outer edge permits firm, cushioned and UNIFORM SEAL all around.

LONG, ACCURATELY POSITIONED VALVE GUIDE means that Weathco regulators assure positive seating and permanent pressure control.

MAINTENANCE IS SIMPLE—removal of inlet insert and vent cap provides easy access to all moving parts.

DEPENDABLE PERFORMANCE IS GUARANTEED . . . proved by complete laboratory tests and by more than three years of successful field service.



Sectional view shows the diaphragm "crimped" at the outer edge . . . precisely molded, the diaphragm is thin where flexibility is important and thickened in areas where sealing must be positive. This results in unequaled sensitivity and permanent leakproof dependability.

AND THE PRICE IS A PLEASANT SURPRISE. Contact The Weatherhead Co., Dept. G-1, Cleveland 8, O., or sales warehouses in Atlanta and Memphis. Canadian address: The Weatherhead Co. of Canada, Ltd., St. Thomas, Ontario.

WEATHERHEAD

is showing the way

Three Division Managers Added to RCA Sales Force

Addition of three new division managers to the RCA Estate sales force has been announced by Gordon P. Hentz, manager of marketing, RCA Estate Appliance department, Radio Corp. of America, Hamilton, Ohio. Two new territories have been created to intensify the company's contact with distributors and dealers in the southern area.

In the southwest, W. F. Robinson will cover south and west Texas, Oklahoma, New Mexico, and Arizona. Mr. Robinson, a native of this territory, had previously been a factory representative for Magic Chef.

J. K. Russell will cover part of the Southeastern Division, which includes distributors in northeast Tennessee, the Carolinas and Virginia. Formerly Mr. Russell was the assistant national field sales manager of Crosley-Bendix.

In the Western Division, Tom Streight replaces C. M. Christensen, who resigned recently. Mr. Streight was formely manager of appliance sales with Harper-Meggee Co., Spokane, Wash.

SQS

SERVICE • QUALITY • SATISFACTION

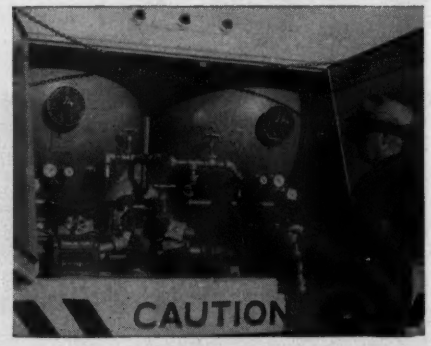
Henry Hackert, Oskaloosa, Iowa, says — "My Loadmaster is everything I thought it would be."

A Complete Line
Twin or Single Barrel

Can furnish in any capacity you desire. Stock models or custom made, to your specifications. Just ask the man who drives one.

Transport

Can furnish in single or twin barrel type. Unit constructed so load can easily be shifted to meet different type tractors. Payload makes you money, this is our specialty.



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Complete Modern Shop Facilities for Mounting and Testing All Pumping, Metering and Propane Handling Equipment.

Send Us Your Specifications and We Will Submit Quotations

The Pasley Mfg. & Dist. Co.

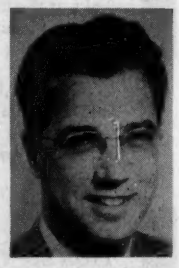
Pressed Steel Appoints New England Representative

J. D. MacDonald Jr

James D. MacDonald Jr., has been appointed district representative in New England for Pressed Steel Tank Co., according to an announcement made in Milwaukee by Norman A. Evans, vice president in charge of sales for the company. Mr. MasDonald, with headquarters in Marshfield, Mass., will cover the states of Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire, and Maine, as well as the northeastern section of New York and adjoining parts of Canada.

Mr. MacDonald joined Pressed Steel Tank Co. early this year, after serving as sales representative for other products in much of the same territory.

Johnny Padrick Rejoins Sales At Holly Manufacturing Co.



Johnny Padrick

Johnny Padrick has rejoined the sales department at Holly Manufacturing Co., Pasadena, and is again contacting builders, architects, and dealers for the heating firm's line of forced air, "Narrowall" and "Stubby" furnaces, according to a recent announcement by Robert Grossman, director of sales.

Mr. Padrick has been in the heating field for the past 15 years, starting at the Southern California Gas Co. and then moving to the E. A. Ray Plumbing & Heatng Co. as supervisor of the heating department.

Later, he joined the sales department at Holly where he stayed until 1954. At that time he went to Sequoia Manufacturing Co. as southern California sales representative, and it is from this position that he has just returned to Holly.

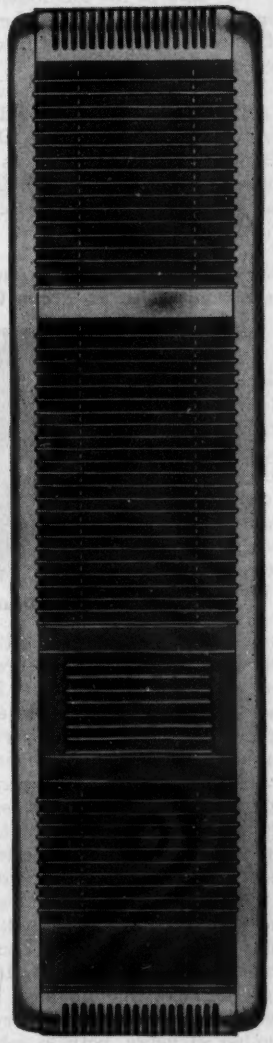
Kreuch and Foubert Named New Vice Presidents of Rockwell

Paul C. Kreuch, assistant to the vice president in charge of Rockwell Manufacturing Co.'s Meter and Valve Division, was named a vice

EMPIRE

MAKES THE BEST *Gas* HEATING APPLIANCES IN THE WORLD

There's NO DOUBT *about it!*



why not offer your customers the finest RECESSED HEATER on the market!

Sell them **QUALITY THAT WILL GIVE SERVICE FOR YEARS—QUALITY THAT'S EXCLUSIVE.**

Sell them **SAFETY THAT'S BETTER THAN ANYTHING MADE.**

Sell them **QUALITY HEATING AND CONTROL UNITS—THE BEST THE MARKET AFFORDS.**

EMPIRE'S famous Recessed Heater is your biggest winter profit-maker . . . No. 1 in sales all over America. And, comfort-makers can be your biggest profit-makers too. They're loaded with features and they're loaded with quality. They're highly competitive in price . . . high in performance . . . high in looks. And when you carry the EMPIRE line you carry EMPIRE'S reputation . . . there's no doubt about it

MINIMUM FIELD SERVICE REQUIRED | **DEALERS ACCEPTANCE** | **MOST EFFICIENT *Gas* BURNER MADE** | **USER SATISFACTION** | **SILENT IN OPERATION**

EMPIRE

A Great Name in Gas Appliances

STOVE COMPANY

BELLEVILLE, ILLINOIS

New 28 page
VIKING PUMP SERVICE MANUAL
for
L-P GAS
and
ANHYDROUS AMMONIA

HERE'S how to correctly install and service Viking Truck Mounting Pumps, Bottle Filling Pumps and Tank Car Unloading Pumps.

Send today for your copy of the new 28-page Manual on Viking LP-Gas and Ammonia Pumps, TS-12B.

See our Catalog in the BPN CATALOG

VIKING PUMP COMPANY
CEDAR FALLS, IOWA

It's more than just a heater
It's a ***FLOOR-FLO***
FORCED AIR DUCTLESS WALL HEATER

These Fine ***FLOOR-FLO*** Features
Build Satisfied Customers For You
- **AUTOMATIC**
- **SIMPLE INSTALLATION**
- **SAFE**
- **ECONOMICAL**

Built-In Modulating Control and Summer Switch
Single and Dual Models

FOR PROFITABLE DEALER INFORMATION WRITE:

Kilbury Mfg. Co. Inc.
14529 Hawthorne Blvd.
Lawndale, California

president in that division, and Eugene F. Foubert, manager of industrial relations for the company was named vice president of industrial relations, it is announced.

Mr. Kreuch, a native of Nebraska, joined Rockwell in 1930 as a sales engineer. Prior to this, he had spent seven years in the gas industry, including three years as chief engineer of Missouri Public Service Co., Warrensburg, Mo.

Mr. Foubert, a native of Berkeley, Calif., joined Rockwell in 1941 as personnel manager of the Oakland, Calif. plant. In 1945, he was named manager of industrial relations for that plant and was transferred to Pittsburgh in 1947.

Douthat, Baker, and Green Promoted at Locke Stove Co.

E. M. Douthat Jr.

Locke Stove Co., manufacturer of "Warm Morning" heaters and gas-fired incinerators, has announced the election of E. M. Douthat Jr., as vice president in charge of sales.

Mr. Douthat has been with the company continuously since 1940, except for three and a half years' army service during World War II. For the past two years he has been sales manager and secretary, and previously served as production manager.

Also announced were the appointments of J. M. Greene as sales manager, Eastern Division, and James E. Baker as sales manager, Western Division. Mr. Baker will also continue to direct the company's advertising and sales promotional activities.

Mr. Greene joined the Locke organization in 1947 as a field sales representative, having been associated with the heating industry for a number of years, both in sales and production capacities. For the past year he has been assistant sales manager.

Mr. Baker has been with Locke since 1949, when he was appointed advertising manager.

All three men will continue to make their headquarters at the company's main offices in Kansas City, Mo.

Ray S. McDonald has been appointed sales representative for gas heaters and other products for the state of Texas. He will make his headquarters in Dallas.

Mr. McDonald has had nearly 25 years of experience in selling gas heating appliances.

THE SOLENOID VALVE

made for all gases

● MGSCo Solenoid Valves, Series EA, are made for all gases—even sour gas. All internal parts in contact with the gas are made of stainless steel or aluminum to prevent damaging corrosion. Valve bodies are made of cast, heat-treated aluminum alloy.

Straight through models are available in ½" female pipe thread inlet and outlet. A ¾" size is now being readied for production. If you want pilot tappings, they can be provided on either or both sides of the body. A pressure tapping can also be placed below the valve, or in the same place can be inserted a manual control screw to hold the valve open during periods of power failure.

For easy wiring, solenoid hoods can be turned 360°. Solenoid hood assemblies are replaceable. Conduit attaching nuts turn easily to facilitate attachment of the tubing.

The valve can be supplied in 20-volt models using transformer DA1 (two-terminal) or DA2 (three-terminal). Get the complete story by writing:

THE MILWAUKEE GAS SPECIALTY CO.
Dept. SB1
MILWAUKEE 1, WISCONSIN

Butane Propane

Carter

A name associated with the oil industry since Sisterville, West Virginia, in 1893 . . over 60 years of experience.

CARTER'S reputation for dependability, which has been earned during these years, is yours when you buy LP gas from Carter.

Call CARTER when you need Butane or Propane — for domestic or industrial purposes — and you call an unexcelled supplier, with unexcelled products.

THE CARTER OIL COMPANY
TULSA, OKLAHOMA

Red Jet **WEED CONTROL BURNER**

USES LIQUID L. P. GAS — The Most Economical Burner Yet Designed.

- Uses Full Tank Pressure.
- Throws Flame 8 to 12 Feet.
- Flame Temperature 2500 Degrees, Plus.
- Burns 12 to 25 Gallons Per Hour.

The RED JET Has Many Applications in Farm, Commercial and Industrial Uses!

- Kills All Annual Weeds.
- Kills Insects — Destroys Their Eggs.
- Prevents Reseeding.
- Decreases Labor Cost in the Fields.

Manufactured by **Northwest Fabricators,** NYSSA, OREGON

For the past three years he has been factory sales representative in Texas for Temco Inc., and for the previous five years was appliance buyer for Townley Metal & Hardware Co., Kansas City. Prior to that he served for 15 years in the sales department of Gas Service Co. of Kansas City.

Vincent P. Rumely Retired from Crane After 18 Years Service

The retirement of Vincent P. Rumely, senior vice president and member of the board of directors of Crane Co. has been announced.

Mr. Rumely became associated with Crane Co. in 1937 as a production engineer. Previously he had served with the Buick and Hudson motor car companies.

He was named manager of Crane's Chicago Works in 1938. Three years later he was elected vice president of manufacturing.

George G. Lindholm, manager of the Chicago branch of Crane Co. since 1948, has been appointed manager of the company's valve and fitting department at its general office, Chicago. He has been associated with the company since 1919.

He succeeds F. J. Wilkey, who has been named special representative of the industrial sales division. Mr. Wilkey has headed the valve and fitting department since 1944.

Thomas D. Kelly has been appointed manager of the Chicago branch to succeed Mr. Lindholm. He has been manager since 1953 of the company's Cleveland branch.

Moyle Promoted to New Position With Phillips Petroleum Co.

James D. Moyle, manager of the Wasatch Sales Division of Phillips Petroleum Co. since 1947, has been given a new assignment with the firm.

The announcement was made in Salt Lake City by officials of the company who flew there from Bartlesville, Okla.

Succeeding Mr. Moyle as manager in Salt Lake will be M. E. Vorhees, regional manager since September of 1953.

Mr. Moyle, who will continue to make his home in Salt Lake City, will devote his full time to special assignments of the company's executive department.

He has been in charge of sales in Utah, eastern Idaho, western Wyoming, and Nevada, since Phillips acquired the properties of Wasatch Oil Co., in 1947.

There's a parade of bonuses headed your way when you join the swing to Sinclair. With every load of Sinclair LP Gas you get these big Sinclair extras . . . Sinclair INTEGRITY–REPUTATION–QUALITY–PERFORMANCE–and GOOD SERVICE. These extra advantages can add up to more, satisfied, repeat customers–a faster growing, more profitable business for you.

Get all the facts about Sinclair LP Gas. It's the gas with high heating value–with moisture and impurities removed. You'll soon see why it will pay you to fly the Sinclair banner in your territory.

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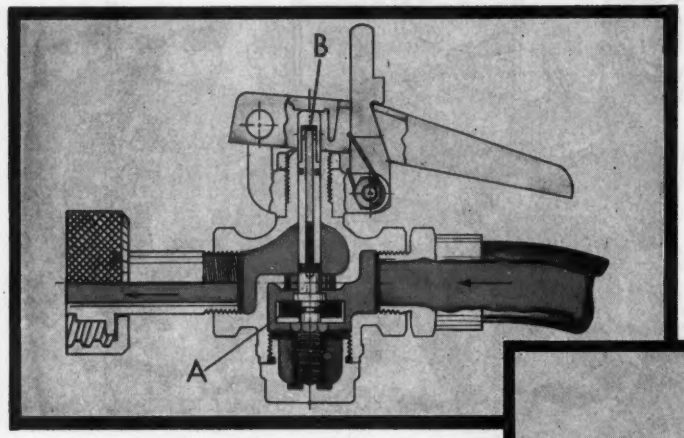
How To Speed Up Filling Operations

sel-pac



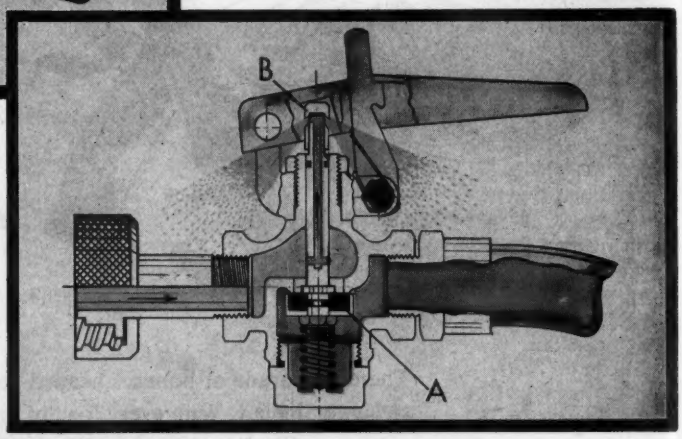
- *SELF-BLEEDING*
- *POSITIVE SHUT OFF*
- *FAST ACTION*
- *SAFE (No frosted hands)*

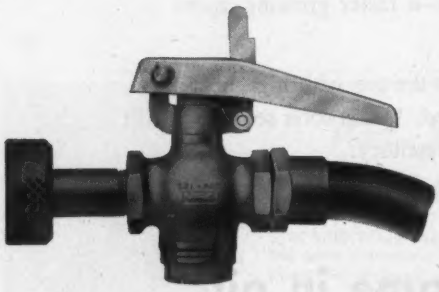
FILLING

Connect to tank, depress handle to locked open position. This closes bleeder valve B and opens valve A to start fuel flow. Any type adapter or coupling may be used.

TO STOP FILLING

Simply trip the handle by pushing trigger latch forward. Main valve A snaps open and bleeder B opens automatically discharging the small amount of liquid entrained between tank fill valve and valve A. Any continuance of "bleeding" would indicate a sticking tank valve. Intermittent opening and closing of this SEL-PAC Hose Valve creates fast surges of liquid which tend to wash away any dirt or scale which may cause the tank fill valve to stick open.





SEL-PAC D-1555
Quick Filling Hose Valve

This safe compact hose valve for transferring LP-Gas for domestic tanks, cylinders and mobile uses is fast, easy to handle and positive in operation. Very close control of flow is afforded and filling to an exact level is regular procedure — no over filling, no guessing. Automatically bleeds off before removal from tank connection.

You quickly "get the feel" of the SEL-PAC Hose valve and acquire considerable speed in handling. You save time. You save fuel and eliminate hand "burns". Equip all of your liquid hose lines with this light weight, efficient low cost hose valve. Fits all standard hose connections and is available in ¾" (D-1555) and 1" (D-1560). Send today for literature and prices.

Selwyn-Pacific COMPANY

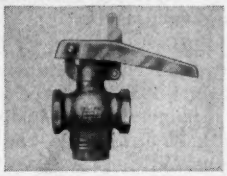
340 WEST AVENUE 26, LOS ANGELES 31, CALIFORNIA

(ADVERTISEMENT)

Safety In New Filling Device

by GEORGE R. POSTLEWAIT
General Manager
SELWYN-PACIFIC COMPANY

Once in a long while in most any industry or business, a new idea or product is introduced which is so simple it is practically unbelievable, yet one which accomplishes a purpose or job better than many complicated and more expensive methods employed in the past. We feel we have run across just such an example of this in our new lever operated globe valve with an automatic bleed feature.



Perhaps one of the most hazardous operations in the handling and transfer of liquid LP-Gas comes at a point where the liquid from the storage tank is conveyed to the domestic tank, cylinder or tractor tank. A conventional hand wheel type globe valve has for many years been used on the hose end to control the passage of fuel. This has provided a dependable shut-off but it is slow, cumbersome and not too safe for a number of reasons.

First, after filling the tank with the old globe valve, the operator must then make 5 or 6 turns of the hand wheel in order to shut off the flow. Then, when breaking the connection, he must do so with considerable care so that the liquid entrained between the globe valve and the tank valve will not suddenly escape causing hand burns.

Secondly, should the fill valve on the tank hold open at the time the operator hurriedly removes the hose connection, a serious loss of liquid can occur before the fill valve reseats, whereas with our new lever operated safety valve you can "trigger" the flow causing rapid surges of fuel which help to reseat a sticking fill valve. Furthermore when filling with the new lever operated valve the instant surge of liquid tends to wash the fill valve seat clean of any dirt which would ordinarily cause it to stick open.

You will like the simplicity of the Sel-Pac valve. No complicated gadgets or special connecting spuds. Should it ever, after long usage, require inspection or service, this is simply done by removing the bottom nut and all parts are readily accessible without removing the valve from the hose. These features all add up in the interest of safety which is of vital concern to all of us.

SELWYN-PACIFIC COMPANY
340 West Avenue 26
Los Angeles 31, California

In 1934 he organized the Rocky Mountain Gas Co., a pioneer distributor of liquefied petroleum gas in Utah and Idaho. He joined Wasatch Oil Refining Co., as assistant sales manager in 1936, and later became sales manager and vice president in charge of marketing for Wasatch.

Mr. Vorhees was with the Agni Fuel Co., of Chicago five years before Phillips acquired that company in 1930. Upon that move he was appointed district salesman for Phillip's Chicago division.

A year later he was advanced to assistant division manager in Chicago, and then came to Salt Lake City as regional manager.

General Controls Appoints Darragh to New England Office

William J. Darragh

William J. Darragh has been appointed manager of the General Controls Co. New England District office in Hartford, Conn., it was announced from the company's headquarters in Glendale, Calif., by J. F. Ray, vice president in charge of sales.

Mr. Darragh joined General Controls' Newark branch in 1950 as a warehouseman and was promoted to sales engineer in 1952. A year later he was named manager of the company's Boston branch.

Cox, Albert Appointed Brunner Sales Managers

Charles F. Cox of Washington, D. C., has been appointed district sales manager of a newly created south-central territory of Brunner Manufacturing Co. Mr. Cox, until recently head of his own contracting firm in the Washington area, will make his headquarters in Jackson, Miss.

His territory will include the states of Alabama, Mississippi, Louisiana, and parts of Arkansas, Tennessee, and Florida.

Raymond G. Albert has been appointed Iowa-Nebraska district sales manager for Brunner. He fills a vacancy caused by the recent retirement of J. R. Reid. Mr. Albert will make his headquarters in De Moines.

The appointments were announced by Frank C. Hawk, vice president in charge of sales for Brunner.

Permaglas Appoints Burleson Manager Water Heater Sales

Wayne Burleson

Appointment of Wayne Burleson of Dallas as manager of water heater sales for the Permaglas Division of A. O. Smith Corp. is announced by R. J. Shepherd, general manager for Permaglas, Kankakee, Ill.

Mr. Burleson, who had been Permaglas sales manager for the Southwest District, fills the vacancy created recently when Mr. Shepherd became division general sales manager.

At the same time it was announced that Mr. Burleson's southwest sales post would be filled by R. B. Wright, a native of Oklahoma City, who has been Permaglas sales representative at Houston since early 1953.

Merger of Detroit-Michigan and Welbilt Brings Personnel Changes

Merger of Detroit-Michigan Stove Co. and Welbilt Stove Co. Inc. was approved by stockholders of both companies at a recent meeting. Under the merger agreement, which became effective immediately following the stockholder actions, Welbilt was merged into Detroit-Michigan and the name of the latter was changed to Welbilt Corp., the surviving company.

Alexander P. Hirsch, formerly president and a director of Welbilt Stove, has been named chairman of the board of the new company. Henry Hirsch, formerly vice president, treasurer and a director of Welbilt Stove, has been named president and a director of the new company.

Fred A Kaiser, formerly president and a director of Detroit-Michigan, has been named general manager of the Detroit division of the new corporation.

The sales and distributing organizations of both companies will be maintained in their entirety.

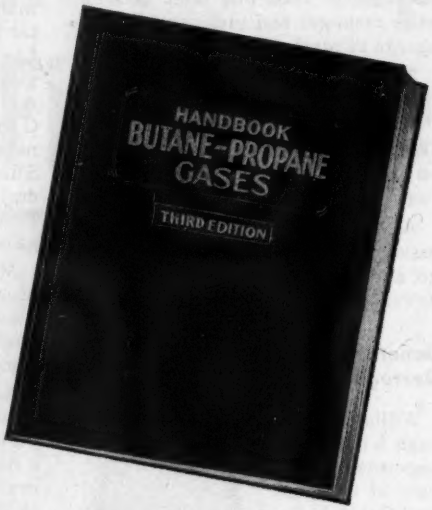
Detroit-Michigan, originally founded in 1864 and operating two plants in Detroit, manufactures household and commercial cooking ranges.

Norge Appoints Schein, Coyle To Builder Sales Division

Appointment of Robert C. Schein and Frank Coyle as eastern and western representatives, respectively, of the builder sales division of

Whether you've been working with LPG facilities for one year or ten...

THIS BOOK CAN HELP YOU!



- ***The only complete and authoritative reference for men with LPG experience.***
- ***Indispensable as basic source material for students and newcomers in the industry.***

Covers the production, properties and handling of L. P. gases, and the engineering, installation, and operation of LPG facilities. Contains 352 pages (8½" x 11½") of technical facts, charts, diagrams, photographs. Includes the industry's latest processes and materials.

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Here's my remittance of $..... to pay for ..... copies of Handbook of Butane-Propane Gases.

NAME.....

COMPANY.....

MAILING ADDRESS.....

CITY.....ZONE.....STATE.....

Norge, a subsidiary of Borg-Warner Corp., Chicago, is announced by R. C. Connell, vice president of sales.

Mr. Schein will be located in New York and Mr. Coyle will headquarter in San Francisco. The men will work with Norge distributors in selling appliances to apartment house owners, motel operators, housing developers, trailer manufacturers, and builders. They will report to Joseph P. Halpin, manager of the division.

Gotwals New John Wood Vice President, Manager

The appointment of J. H. Gotwals as vice president and general manager of the Heater and Tank division of John Wood Co. is announced by J. B. Balmer, president.

Mr. Gotwals was formerly associated with the Rheem Manufacturing Co. and since 1938 he served as production manager, Appliance division, in Newark, N. J., Chicago, and Sparrows Point, Md.

Mr. Gotwals will be responsible for operations of John Wood Co.'s Heater and Tank division in Chicago as well as Conshohocken, Pa., where the divisional offices will be located.

Peerless Pump Appoints Nickel, Olson As Product Sales Managers

Announcement is made by Peerless Pump division, Food Machinery & Chemical Corp., of the appointments of Carl L. Nickel as product sales manager, water systems and dealer line products, and Norman C. Olson as product sales manager, engineered line products.

Both men have been with FMC's Peerless Pump division since 1946. Mr. Nickel was previously branch manager of the firm's Chicago office.

J. H. Loomis Appointed Manager Worthington St. Louis Office

J. H. Loomis has been appointed manager of Worthington Corp.'s St. Louis office, states W. A. Meiter, general sales manager of the company. Previously, Mr. Loomis had been serving as general line salesman and compressor specialist at the Worthington Chicago district office.

P. A. Mack, former manager of the St. Louis office, has been appointed special representative, in which capacity he will devote his full time to the development of business through special customers and assignments. Associated with Worthington for 40 years, Mr. Mack served as manager of the St. Louis office for 23 years prior to his present appointment.

The RANCHERO

MIGHTY AS IT IS MODERN

insulated COOL CABINET

OWENS-CORNING FIBERGLAS

MODEL NO. 630.
UNVENTED

Quick 2 WAY HEAT

RADIANT HEAT INSTANTLY TO FLOOR. CIRCULATES ON WARM-UP. HEATS WITHOUT DELAY.

INSULATED CABINET PROTECTS HANDS, FURNISHINGS. CENTRALIZES HEAT FOR MAXIMUM LIVING ZONE COMFORT.

CASTIRON BURNER IS PRECISION MACHINED. BALANCED FLAME, NON-CLOG, QUIET, ALL GASES.

DIAL AIR SHUTTER, LOCKS. HEAVY DUTY RADIANTS ARE HEAT-REFLECTING, RUGGED.

BAKED ENAMEL FINISH, BEIGE & IVORY. CHROME HEARTH, GUARD, REFLECTOR WINGS.

AUTO-CONTROLS AVAILABLE Easily Added On The Job.

The RANCHERO charms homemakers on sight, with modern decorator styling, sparkling color-finish. They like its quick response, powerful output, convenience, economy. Above all, they thrill at "Cool Cabinet" protection to hands, furnishings. And, right there's the RANCHERO secret of efficiency .... the insulation prevents heat waste, insures more heat for Living Zone comfort, much more.

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WINTER AIR CONDITIONERS • VENTED & UNVENTED CIRCULATING HEATERS • FIREPLACE & UTILITY HEATERS • WALL FURNACES

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STEUBENVILLE, OHIO
Send Catalogs (with prices) as checked.

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THE OHIO FOUNDRY & MANUFACTURING CO. • • • STEUBENVILLE, OHIO

Trade Notes

Brian E. Brennan, of Toledo, Ohio, has joined *Servel Inc.*, as manager of manufacturing in the company's home appliance division. His appointment was announced by John H. Wall, vice president and general manager of the home appliance division. Mr. Brennan will direct appliance production, manufacturing engineering, and production and material control, reporting directly to Mr. Wall.

Appointment of *Robert E. Clark* as assistant director of advertising of *Norge*, a subsidiary of Borg-Warner Corp., Chicago, is announced by Robert J. Runge, director of advertising.

One of the principal executive positions in the new organization chart of *Servel Inc.* has been filled with the appointment of *Richard S. Testut* as assistant to the president and director of business planning. Mr. Testut's appointment was announced by Duncan C. Menzies, president and chief executive officer.

William F. Cathcart, Cleveland tertorial manager of the Cooking Appliance Controls Division, Robertshaw-Fulton Controls Co., has been assigned to special engineering duties at the firm's *Robertshaw Thermostat Division*, Youngwood, Pa. Replacing him in Cleveland is D. Rex Scott, who joined the company in 1950.

William E. Patton has been elected controller and assistant secretary of *American Pipe & Steel Corp.*, Alhambra, Calif., according to an announcement by Jack Lane, president of the firm, whose products include a full line of LPG storage and transportation equipment.

William R. Morrisey has been appointed sales representative in Chicago and surrounding areas, E. J. Campbell, Midwestern district sales manager for *Wolverine Tube*, division of Calumet & Hecla Inc., announced recently. Mr. Morrisey will be handling aluminum and steel accounts.

G. R. Winder, vice president and general sales manage of *Chiksan Co.*, Brea, Calif., announces the appointment of *James L. Emerson* to fill the newly created post of assistant to the manager of the firm's sales development department under E. N. Thomas. Mr. Emerson will devote the major part of his time to Chikson's advertising and sales promotion program.

Howard Ferris

Howard Ferris, veteran gas industry heating salesman, died May 17, 1955. He is survived by his wife, Gladys, who resides at the family home in Sonoma, Calif., and by their two daughters.

Born in Cleveland on June 27, 1908, Mr. Ferris would have been 47 years old next month. He served for 23 years in various capacities at Day & Night Division of Carrier Corp. in Monrovia, and was assistant sales manager at the time he left to go with Kresky Manufacturing Co. of Petaluma, Calif. During most of the six and one-half years that he was with Kresky, Mr. Ferris served as general sales manager of Ward Heater Co., recently annexed by Kresky.

Mr. Ferris was an active member of PCGA, and was vice chairman of the Water Heater division, Manufacturers Section, 1949-1950. Among his many activities, he was a member of the Aahmes Shrine temple, Oakland, and the Gild of Ancient Supplers.

Find out how you can make more money with WARM MORNING LP-Gas Heaters!

Fill out, detach and mail the coupon below today. Learn how you can make more money as a dealer for the hottest line of LP-Gas Heaters in the field—WARM MORNING.

The beauty of selling Warm Morning heaters is that your customers know the Warm Morning name. It's a name they respect and trust. Features like the exclusive "Heat Ramp" have the kind of appeals that move merchandise.

So, don't put it off! Find out how you can make more money by selling Warm Morning LP-Gas Heaters. Mail the coupon today for literature and facts!

SEND FOR COMPLETE LINE CATALOG

The Warm Morning "365". Heats three to five rooms with 65,000 BTU input. Complete safety controls.

HERE'S A COMER! WARM MORNING LP-GAS INCINERATOR

Write immediately for full information on the new Warm Morning LP-Gas Incinerator. It's a money maker for you. Burns trash and wet garbage. Best built and fastest selling incinerator on the market.

MAIL COUPON FOR FREE INFORMATION!

LOCKE STOVE COMPANY, Kansas City 5, Mo.

☐ Send me your catalog and other information on Warm Morning LP-Gas Heaters.

☐ Send me complete information on the Warm Morning LP-Gas Incinerator.

Name_____

Address_____

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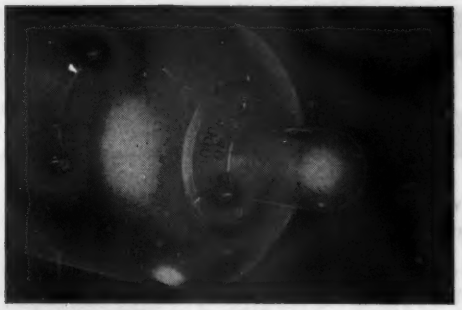
PREST-O-LITE
Trade-Mark
CYLINDERS for LP-Gas are your best buy

When it comes to LP-Gas cylinders, your wisest, most economical investment is in the PREST-O-LITE Brand. For PREST-O-LITE Cylinders combine unsurpassed quality, low cost, and attractive appearance to satisfy the exact needs of LP-Gas users everywhere.

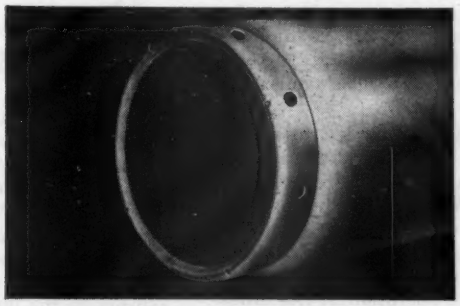
PREST-O-LITE Cylinders are rugged and sturdy for long, dependable service life. They're lightweight for easier handling at lower expense. Factory testing is in excess of requirements to assure maximum safety and performance. Every PREST-O-LITE Cylinder is deep-drawn to extremely uniform wall thickness. Durable aluminum enamel protects the cylinder finish indefinitely and reduces repainting costs.

For further information write or 'phone your nearest LINDE Office today. Ask for free booklet F-8187.

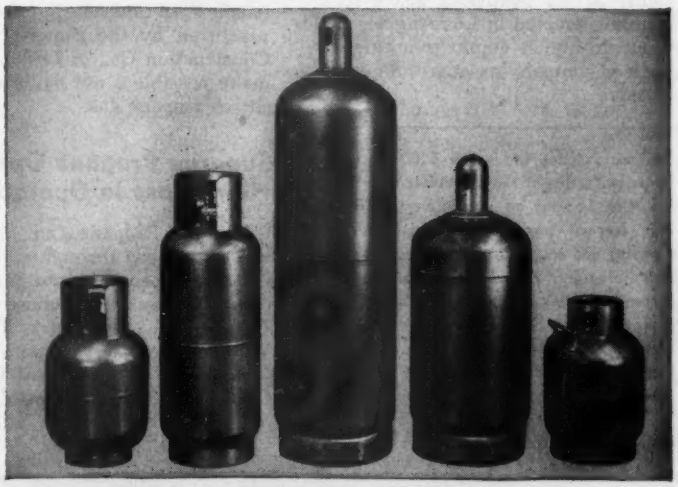
The terms "Linde" and "Prest-O-Lite" are registered trademarks of Union Carbide and Carbon Corporation.



Data remains easy to read throughout life of the cylinder. Large characters are deeply cut into an extra thick, wide flange on 60-lb. and 100-lb. capacity cylinders (into valve protecting head ring of 20-lb. and 40-lb. styles).



Superior anti-rust coating protects the cylinder bottom and interior of footring against corrosion—a valuable extra at no additional cost to you!



PREST-O-LITE *Cylinders are available in the popular 20-lb., 40-lb., 60-lb. and 100-lb. capacity sizes, with or without valves. Other styles can be made to order.*

LINDE AIR PRODUCTS COMPANY
A Division of Union Carbide and Carbon Corporation
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In Canada: LINDE AIR PRODUCTS COMPANY
Division of Union Carbide Canada Limited, Toronto

NEWS

News and news notes about the activities of manufacturers, distributors and dealers.

New Developments Foretold In Warm-Air Heating Field

Revolutionary new developments in the field of warm-air heating and air conditioning with gas were discussed by John Norris, president of Lennox Furnace Co., at the dedication of the company's new Pacific Division headquarters. Mr. Norris, who traveled from Marshalltown, Iowa, home office of Lennox, for the dedication, predicted that within a few years a gas-heating-air conditioning unit operating at one-half the cost of electric units would be available to low-income families.

Lennox looks forward to a large volume of sales in the California area. When natural gas reaches Oregon and Washington, the company plans to enlarge its distribution facilities in those states by building large warehouses there similar to the one put into operation in Los Angeles. President Norris is a strong believer in the benefits from modern, neat facilities. He feels that the expense of the luxurious 28,000-sq ft building erected in Los Angeles will result in higher employe morale, increased company prestige, and greater sales.

One of the largest truck and trailer units operating in the West, the trailer represents the latest development in the frameless trailer design by the Utility Trailer Co.

Petrolane Operates Largest Truck Trailer Unit in West

Petrolane Gas Service Inc., Long Beach, Calif., has just brought into service one of the largest propane truck and trailer units operating in the west. This "Tank Car on Wheels" is made up of a Kenworth all aluminum cab and component parts powered with a propane-operated series 400 Hall Scott engine. The trailer represents the latest development in the frameless trailer design by the Utility Trailer Co.

Special lightweight A-202 high-tensile steel tanks designed and manufactured by the Superior Tank & Construction Co., of Los Angeles, make possible a net payload of 8705 gal. of propane gas.

The truck is equipped with twin 3000 U. S. gal. tanks. The tractor is a Reo F 50-T LPG and develops 160 hp. The Reo's short turning radius is helpful due to the extreme overall length of the truck, over 49 ft. Superior leases the tractor from Reo, as they do many other trucks in their fleet, thus being relieved of servicing problems.

Barrie formerly operated as a branch of the Maple plant, 40 miles to the south. Cylinders filled at Maple were transported by truck to the Barrie plant for delivery to customers. Barrie will now fill cylinders, not only for its own customers, but also for three agents who operate to the north and northwest of Barrie.

Superior Propane Ltd. now has a total storage of 174,000 U. S. gal. at five locations, with exclusive filling rights at public utilities in three additional locations. Another 30,000-storage tank is on order to commence operations within the next few weeks.

With the opening of the Barrie bulk plant, Superior plans to promote house-heating in the immediate Barrie area and will be able to provide additional gas supplies for the increasing industrial population.

Superior Propane Opens New Phase in Operations

Superior Propane, Ltd., distributor of propane gas throughout southern Ont., has opened a new phase in its operations by the purchase of a 6000 U. S. gallon cargo truck. The truck will be used to transport propane from the B-A refinery at Clarkson, Ontario, a few miles west of Toronto, to the new 30,000-gallon bulk storage plant at Barrie, Ont.

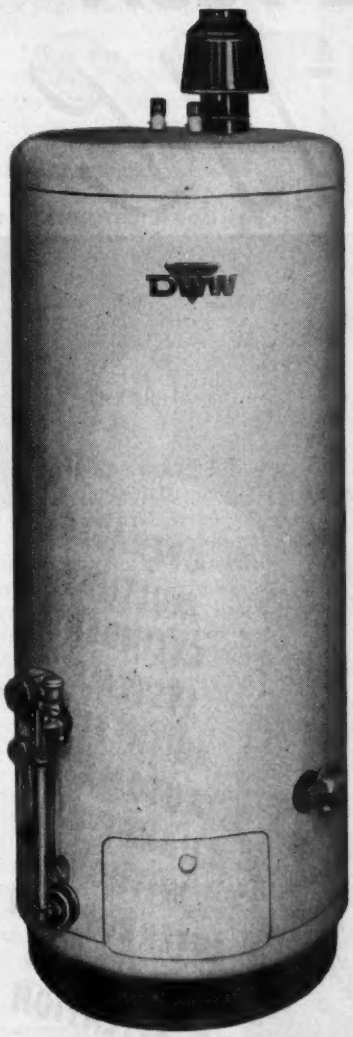
Superior Propane Ltd.'s new 6000 U. S. gal. cargo truck fills at the B-A refinery in Clarkson, Ont. Looking on with interest as F. Neden, (second from left) superintendent of pumping and shipping, checks pressure gauge are: (left-right) J. R. Dawson, manager sales planning, British American Oil Co. Ltd., Mr. Neden, Morice Stevens, Clarkson refinery manager, John Becker, president of Propane Containers of Canada Ltd., John F. F. McQueen, president Superior Propane Ltd., and W. T. Edmeads, general sales manager, Superior Propane Ltd.

National Council Booklet Offered to Industry Firms

Two versions of the consumer booklet produced by the National Council for LP-Gas Promotion, "L.P. gas . . . Modern Fuel for Millions," are being offered to industry companies for imprinting and local distribution.

One contains promotional copy on all major uses of L.P. gas, both home and farm, and a page which stresses the importance of adequate storage facilities on consumer premises. The other, a 16-page adaptation which de-emphasizes heating and farm ap-

D. W. Whitehead Announces Water Heater Rental Plan



■ IT MAKES MORE PROFITS

■ IT HOLDS GAS CUSTOMERS

CAPITAL OUTLAY...

You'd Be Surprised!

Here's a really profitable water heater set-up! This dynamic new rental plan assures *exclusive gas customers*—even in highly competitive areas. And because it's geared to their buying power, you can be sure of quicker returns on your investment—faster turnover than ever before. Get in on this profit-packed opportunity. Team up with D. W. Whitehead—the water heater line homeowners know and prefer. Write today for full details!

D·W·WHITEHEAD

DWW

automatic

WATER HEATERS

ESPECIALLY DESIGNED FOR LP GAS

LPGA

OFFER YOUR CUSTOMER THESE IMPORTANT ADVANTAGES

- QUICK, ABUNDANT HOT WATER
- 100% AUTOMATIC SAFETY PILOT
- HEAVY FIBERGLAS INSULATION TO PREVENT HEAT LOSS
- ADJUSTABLE THERMOSTAT EASILY SET FOR ANY TEMPERATURE
- NON-CLOGGING BURNERS
- DUST-FREE BASE
- GLEAMING WHITE ENAMEL CASING
- ADVANCED DESIGN WITH LATEST SCIENTIFIC IMPROVEMENTS
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1220 Walnut Ave., Trenton 9, N. J.

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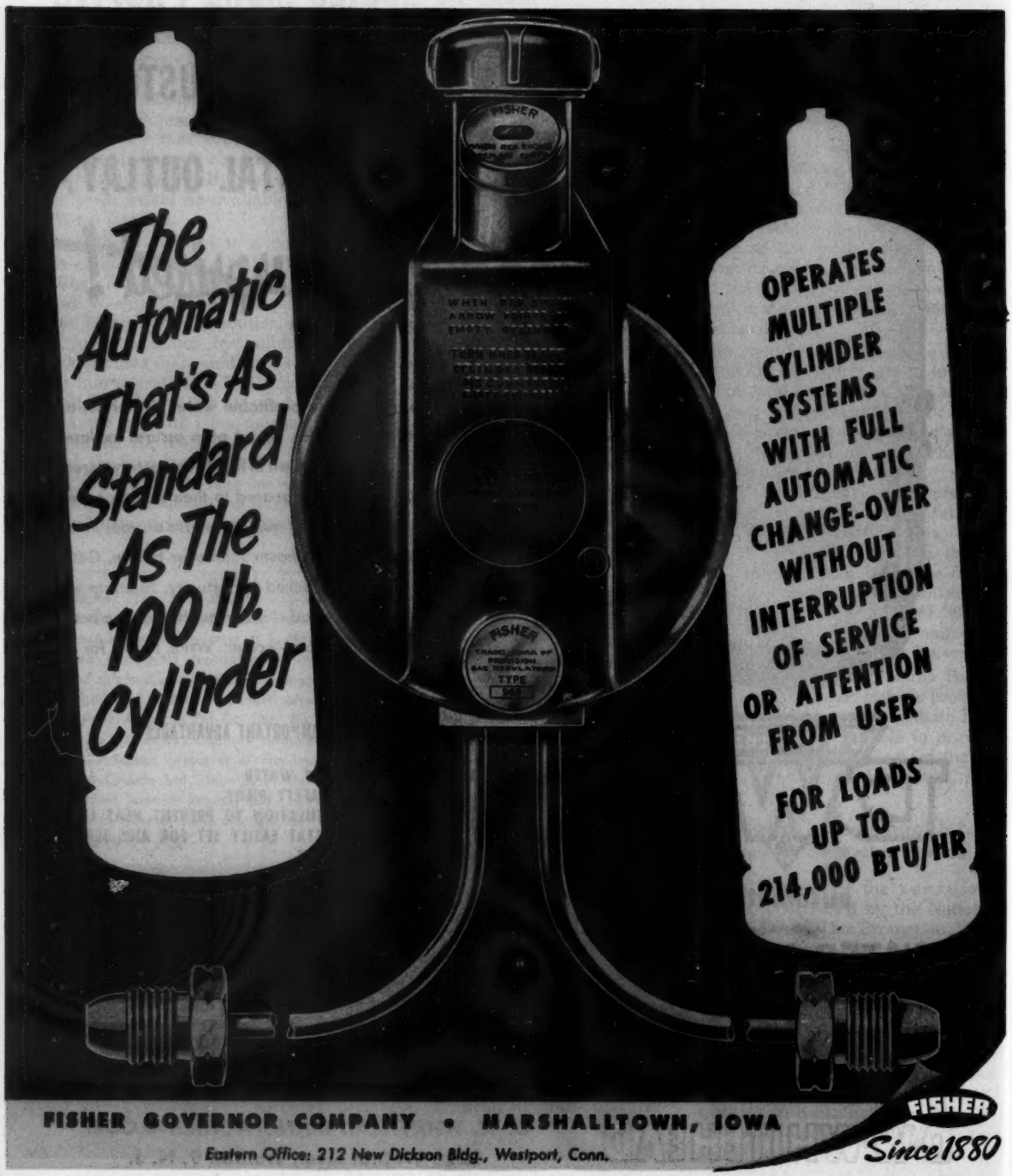
The Automatic That's As Standard As The 100 lb. Cylinder
OPERATES MULTIPLE CYLINDER SYSTEMS WITH FULL AUTOMATIC CHANGE-OVER WITHOUT INTERRUPTION OF SERVICE OR ATTENTION FROM USER
FOR LOADS UP TO 214,000 BTU/HR
FISHER

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Eastern Office: 212 New Dickson Bldg., Westport, Conn.

FISHER Since 1880

plications, is designed for bottled gas operators.

Printed in two colors and illustrated, both booklets have practically the entire back page blank for dealer imprint. Prices range from $6.80 to $10.50 for 100 copies on the 24-page version, and $5.60 to $8.50 for 100 copies on the bottled gas version, depending on quantities ordered and whether the purchaser is a participant in the promotional program.

National Propane Acquires New Distribution Business

National Propane Corp., New Hyde Park, L. I., in transactions involving more than $7 million, consummated a complete refinancing and acquired the propane gas distribution business of Lehigh Inc., Norwich, Conn., and its affiliates, according to Harry N. Forman, president of National.

National serves approximately 80,000 domestic, commercial and industrial customers. Lehigh, established in 1937, furnishes propane gas in portable cylinders and bulk to retail customers in Connecticut, Rhode Island, and Massachusetts. It will be run by its present operating organization as the Lehigh Bottled Gas division of National, the latter company said.

Bryant Moving Home Office To Indianapolis

In connection with the establishment of national headquarters of the Bryant Division of Carrier Corp. in Indianapolis, the firm has acquired an industrial site for administration, sales, engineering and research offices across from the Bryant manufacturing plant at 1100 West 21st St. The announcement is made by Ronald N. Campbell, Bryant's vice president and general manager.

This acquisition follows the announcement that Bryant is moving its home offices from Cleveland to Indianapolis, and will permit permanent establishment of headquarters close to the plant. Until the newly acquired property is ready for occupancy Bryant offices will be located at 48 Monument Circle.

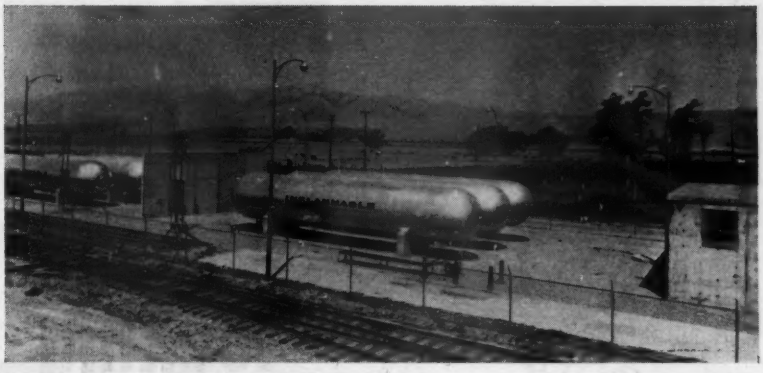
Legislation Introduced For Self-Supporting TVA

Congressional recognition of the fact that TVA has been having a free ride was evidenced during the week ending June 3 as legislation to move the government-sibsidized authority toward a self-supporting basis was introduced into both chambers. One bill reflects the Budget Bureau's thinking as to changes that should be made, and contains severe alterations to the present setup, while the other bill, backed by supporters of TVA, contains more mild reforms.

The Budget Bureau plan advocates the following measures: (1) that Congress continue to approve new TVA power plants, (2) that the amount of TVA bonds outstanding be limited to $750 million, (3) that the timing, amount, and terms of TVA bond issues be decided by the Secretary of the Treasury, (4) that repayments to the Treasury out of earnings be larger than those under the TVA board's plan, (5) that the Treasury purchase no bonds through negotiations with TVA, (6) that TVA Congressional appropriations be returned to the Treasury in an orderly manner, (7) that interest rates be set by the Treasury rather than by TVA, (8) that the authorized functions of TVA not be broadened, (9) that U. S. investments in TVA be reduced to $250 million, (10) that national banks be permitted to deal in or underwrite TVA obligations, but without removing restrictions applicable to their purchases for their own accounts or limitations on the total amounts which any such bank may hold.

The other bill, introduced by Representative Davis of Tennessee, calls for less drastic steps, and incorporates a plan to finance TVA power expansion in part by revenue bonds. These bonds would supplement congressional appropriations, and other restrictions suggested by the Budget Bureau would not go into effect.

General Vogel, TVA board chairman, urged Congress to pass the Budget Bureau's plan quickly. He pointed out that the 1956 budget contains no appropriations for new generating capacity as it is, and that the Budget Bureau's program is designed as an alternative to such appropriations.



Six 30,000-gal. storage tanks are a part of the L.P. gas standby system installed at the West Coast plant of Ford Motor Co. at Milpitas, Calif.

Ford Motor Co. Installs L.P. Gas Standby System

The West Coast plant of Ford Motor Co., Milpitas, Calif., has installed an L.P. gas standby system with a capacity of 180,000 gal. The system will provide fuel whenever the natural gas service is interrupted or inadequate.

The 180,000-gal. storage is composed of six 30,000-gal. tanks which are arranged in two banks of three tanks each. Three tank-car unloading stations and two truck unloading stations are provided. Both the tank truck and the trailer can be unloaded simultaneously, thereby reducing truck unloading time. Unloading lines are equipped with sight flow-check valves.

The standby system was designed and installed by American Liquid Gas Corp., Los Angeles.

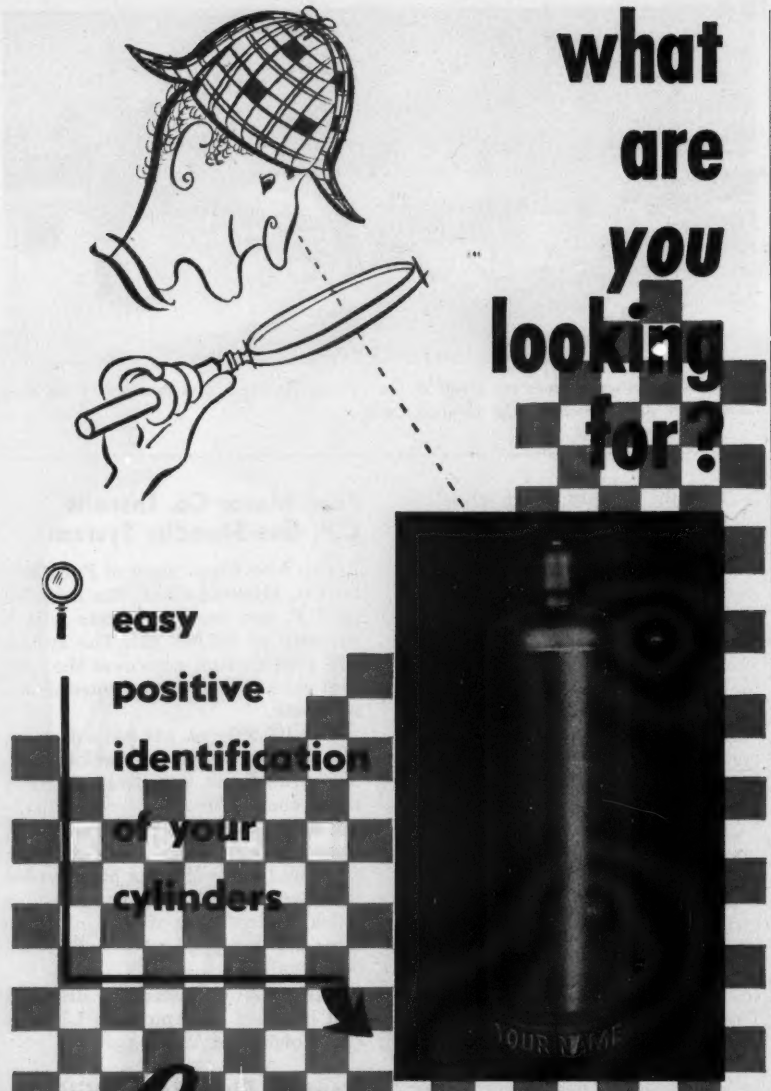
Contest First Prize Will Be $5000 Farm Kitchen

"I prefer modern L.P. gas appliances for better farm living because . . . " when completed in 25 words or less will win someone a $5000 Farm Kitchen of Tomorrow," while runners-up will receive prizes of modern gas appliances. This special sales promotion campaign, originated by the LP-Gas Information Service, will open Aug. 20 and close Oct. 31.

The contest will be sponsored jointly by *Better Farming*, the National Council for LP-Gas Promotion, and manufacturer members of the National LP-Gas Promotional Program.

In order to enter this contest, contestants must visit the L.P. gas dealers' showrooms to get an official entry blank, which will merely be the dealer's letterhead.

This special sales promotion pro-


what are you looking for?
easy positive identification of your cylinders
YOUR NAME
Lee CYLINDERS
EMBOSSED FOOT RING
A permanent, distinctive type of marking. Your name can be embossed in large, legible letters on the foot ring for quick identification of YOUR cylinder—no possible question of ownership. A constant reminder of YOUR gas service—costs no more.
STEEL COOPERAGE
DIVISION OF THE SERRICK CORPORATION
4801 BELLEVUE • DETROIT 7, MICH. • WAlnut 5-3430

gram is designed to accomplish three major objectives:

(1) Bring farm people into L.P. gas dealers' showrooms.

(2) Take a long step in proving the modernity, safety and convenience of new L.P. gas appliances.

(3) Provide the springboard for a powerful sales promotion program at the dealer level.

National and local advertising and publicity about the contest will generate showroom traffc, since entrants must go to dealers' stores to obtain an entry blank. During their visit, salesmen can help contestants with their entries by selling the automatic features of modern gas appliances.

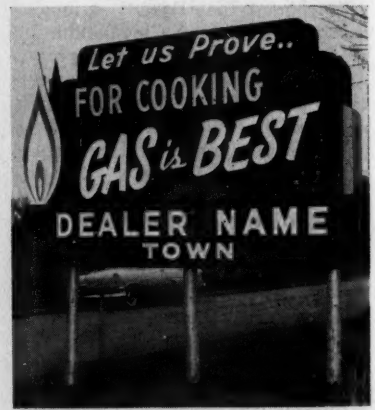
The "Farm Kitchen of Tomorrow" will actually be installed for public inspection on the stage of the women's program of the National Plowing contest in Wabash, Ind., Sept. 14-17. It will be the backdrop for all activities in the women's tent. More than 10,000 farm women are expected to attend.

Better Farming has scheduled a four-color picture of the L.P. gas "Farm Kitchen of Tomorrow" and a story about its features for a fall issue. Trudy Dye, editor of *Better Farm Living*, the home section of the national farm magazine, will serve as chairman of the team of judges who will choose the top winner.

Winners will be announced the week of Nov. 14, so prizes can be awarded for Thanksgiving.

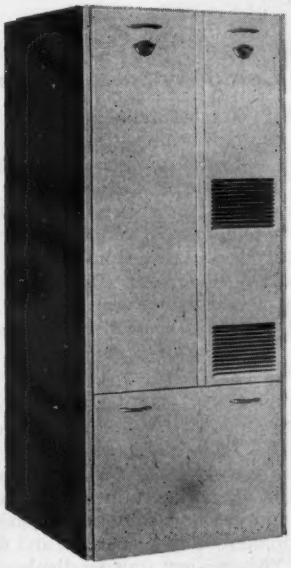
Blue Scotchlite Flame Highlights Highway Sign

A new highway sign service has been made available by Beals Advertising Co. In four flourescent colors the sign, measuring 7 by 12 ft, has many outstanding features. The blue



Scotchlite highway sign in four fluorescent colors measuring 7 by 12 ft, incorporates a blue flame 5-ft high to attract passersby so they will read the sales message.

smooth operator with floating chassis



compact design saves floor space. floating chassis eliminates cabinet vibration.

UTILITY'S NEW COMBO-365 AIR CONDITIONER

More and more home owners are demanding a single unit air conditioner —one that cools and heats—that is compact, quiet and fully automatic. That's why Utility designed and engineered the new Combo-365. Here's year-round climate control . . . 365 days of push-button comfort.

With floor space at a premium, Utility concentrated on saving space. The two-ton/75,000 BTU model measures only 27½" wide, 27½" deep—about a third less than comparable capacity conditioners. The three-ton/105,000 BTU model is proportionately compact.

To guarantee quiet operation, Utility designed the "Floating Chassis" refrigeration circuit installed on resilient channels to eliminate cabinet vibration. This unique interior design also permits installing first the cabinet including the forced air furnace . . . easily adding the hermetically sealed refrigeration chassis whenever the home owner desires. Maximum airflow is assured by the large 12" double width blower which is resiliently mounted for quiet operation. Utility's Sy-Lent* heat exchanger silences expansion and contraction noises.

Of course, Combo-365 boasts automatic controls. What could be simpler than a flip of a thermostat switch. That's all you need to change from summer to winter operation. No dampers to install. No change-over worries.

Combo-365 is an exciting new addition to modern living. For increased efficiency, trouble free operation and complete customer satisfaction, Combo-365 is a stand-out performer.

**Patent applied for*

See the complete Utility heating and air conditioning line now.

GAFFERS & SATTLER AND OCCIDENTAL
Automatic Gas Ranges
UTILITY
Furnaces • Air Coolers
Air Conditioners
Water Heaters

a happier living family tree . . . all branches of

UTILITY APPLIANCE CORP., Dept. BPN-7
4851 S. Alameda St. • Los Angeles 58, Calif.
Please send me full information on:

- ☐ Utility Automatic Heating & Air Conditioning Equipment
- ☐ Utility Cooling Equipment
- ☐ Utility Automatic Gas Water Heaters

NAME_____

ADDRESS_____

CITY_____ ZONE___ STATE_____

GAS-FIRED UNIT HEATERS

by Modine

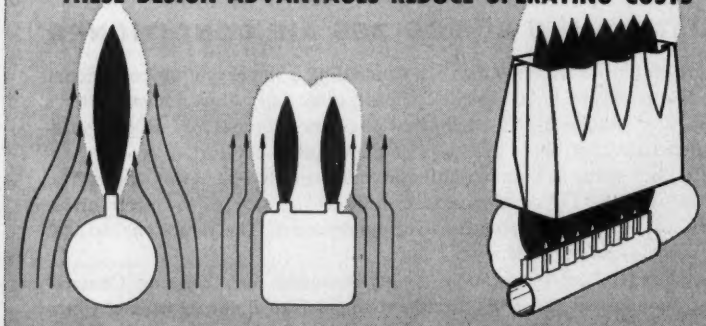
save you money right from the start

Lightweight cuts shipping, installation costs

WEIGHT COMPARISON		
Brand	Capacity (Btu/hr. input)	Approx. Net Weight
Modine (aluminized steel)	105,000	105
Modine (stainless steel)	105,000	95
Brand "A"	100,000	170
Brand "B"	102,000	196
Brand "C"	90,000	175
Brand "D"	100,000	165
Brand "E"	100,000	210
Brand "F"	100,000	210
Brand "G"	105,000	170

Light weight, without sacrifice of strength or efficiency, makes Modine Unit Heaters easier to handle, faster to install. Also cuts need for expensive support structures.

THESE DESIGN ADVANTAGES REDUCE OPERATING COSTS

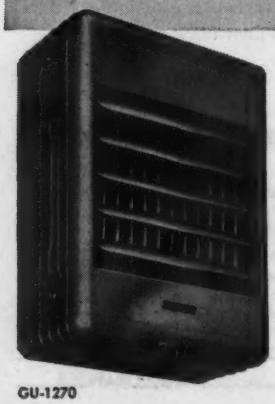


More usable heat per fuel dollar
Single-row burner ports help insure adequate secondary air supply. As a result, you get maximum combustion efficiency, more delivered heat per fuel dollar.

Faster, more uniform heating
Continuous flame from front to rear of individually-fired exchangers, increases radiant heat absorption, uniformly distributes heat through tube.

LONGER LIFE . . .
AND . . .
LOW-COST SERVICE

Stainless steel slashes corrosion loss
Modine burners, to all practical purposes, are unaffected by acid corrosion, rusting and scaling . . . give you many years of trouble-free, top efficiency.



GU-1270

NEW 12-PAGE BULLETIN 655

gives you more complete information, selection and application data. Call the Modine representative listed in your classified phone book. Or write — Modine Mfg. Co., 1377 DeKoven Ave., Racine, Wisconsin.

Modine
UNIT HEATERS

scotchlite flame is 5 ft high. Any number of choices are available in selling messages, so that important gas uses can be headlined for an effective local selling job.

Representing a unified effort to provide an effective "traffic" advertising medium for gas dealers and gas utilities, the sign with its distinctive eye-appeal was displayed before, and approved by the board of directors of the Oklahoma LP-Gas Association at its recent spring convention in Oklahoma City.

The new service includes leasing the site, erecting the sign, maintaining it, plus a guaranteed liability insurance; all for one small monthly rental.

Live Appliances On Display At Company Sales Meeting

With 60 sales engineers converging on South Norwalk, Conn., from the east, midwest, and south, as well as the Dominion of Canada for its annual sales meeting, Prat-Daniel Corp. temporarily transferred manufacturing activities from its Thermobloc Division plant. The plant was then converted into an exhibit hall and remained as such for the duration of the sales meeting.

The Thermobloc Division of Prat-Daniel Corp. manufactures a complete line of industrial warm-air heating equipment. All models the company produces were on display, and in actual operation. There were oil and gas and combination gas-oil equipment, both suspended and floor set. The smallest unit on display has a Btu output of 100,000 per hr. The largest unit on display has an output of 2 million Btu per hr.

Also in operation were the infrared overhead panelbloc heaters. This is the gas-fired radiant heater that requires no electrical current.

An achievement dinner was held at

Thermobloc sales engineers watch installation demonstration of overhead heaters. The heater was removed from crate, hoisted to position, connected and put in operation. Prat-Daniel Corp.'s W. H. Engels (left) gave the commentary on various steps involved.

NO FINANCIAL WORRIES WITH McNAMAR . . .

McNamar can solve your financing problems on both storage and domestic tanks . . .

We can assure our dealer not only a competitive price, a quality product, but also assistance with any problems that might confront him in future years . . .

YOU CAN DEPEND ON McNAMAR . . .

Whether it's a 115 gallon to 1000 gallon domestic system or a 6000 to 30,000 gallon storage tank, we can meet your requirements . . . for size . . . quality of workmanship . . . speed of delivery . . .

SEE McNAMAR BEFORE YOU BUY . . .

McNAMAR STANDS on its record of performance to give you the best tank money can buy . . Don't lose peak season profits by waiting on tank delivery . . . When you deal with McNamar the year around you are assured of immediate delivery during any season . . .

GUARANTEED

to provide the utmost in safety and designed for highest operating efficiency.

CERTIFIED

to meet exacting requirements of ASME Code.

McNAMAR

BOILER & TANK CO.

BOX 868 — PHONE 2-6293 TULSA, OKLAHOMA

The Parkhill Safety Hose Nozzle attaches in 3 seconds . . . only two operations.

IT'S SAFE . . . Nozzle must be locked on before fuel can discharge. Upon release gas escapes outward . . . **No Cold Burns!**

Rugged construction of Nozzle withstands abuse. Internal parts require minimum repair. Shut-off valve has only one moving part. Any service man can repair.

Parkhill

Safety Hose Nozzles . . .

can be used for any filling operation. LP-Gas dealers everywhere are using this quick-action filler nozzle for fuel transfer at *plant, tank truck* and *filling station.*

The Parkhill line of LP-Gas storage and control equipment is the result of 25 years of development work by men who helped pioneer the LPG industry.

Parkhill COMPANY

Look to Parkhill for SAFE, RELIABLE LP-Gas equipment

2264 HUNTINGTON DRIVE, SAN MARINO, CALIFORNIA

All of these securities having been sold, this advertisement appears only as a matter of record.

NEW ISSUE

75,000 Shares

GULF CITIES GAS CORPORATION

CLASS A STOCK

(Par Value $1.00 Per Share)

Price $8½ Per Share

Copies of the Prospectus may be obtained from only such of the undersigned and other dealers as may lawfully offer these securities in this State.

•

EISELE & KING, LIBAIRE, STOUT & CO.

Established 1868.

Members of New York Stock Exchange
50 Broadway

Members of American Stock Exchange (Assoc.)
New York 4, N. Y.

May 18, 1955

the Twin Terrace restaurant, Darien, Conn. At that time, the Thermobloc sales plaque was presented to the Engineering Products Corp. of Fairfield. This company lead the nation in Thermobloc sales in 1954.

McRae Named Manager for Canadian Gas Company

D. Ross McRae

Moving up from the position of office manager, D. Ross McRae has been named manager for British Columbia of Bottled Gas Co., Ltd., distributors of "Rockgas" propane. He succeeds W. J. Mickle who has been transferred to a company subsidiary in Sault Ste. Marie, Ont.

Announcement of the appointment is made by F. J. Simington of Edmonton, vice president of the parent company, Great Northern Gas Utilities.

Mr. McRae, who has been associated with Bottled Gas Ltd. for the last seven years, was also appointed Western Canadian director for the Liquefied Petroleum Gas Association at the national convention in Chicago this month.

Perfection Purchases Plant Of Knox Metal Products

As part of an expansion program, Perfection Industries Inc. announces that it has purchased the Waynesboro, Ga., plant of the Knox Metal Products Co.

According to D. S. Smith, president of Perfection, the company has been aware of the growing need for southern manufacturing facilities to provide appliances which are sold primarily to the southern market. Since 1925, Perfection has maintained a regional sales office in Atlanta, Ga.

The Waynesboro plant will be headed by John Gardner as general manager. He is a 34 year veteran with Perfection and came up through the manufacturing division of the company. For the past 11 years he has been Perfection's industrial relations director, a post which will now be filled by Robert H. Doesburg.

It is anticipated that the Waynesboro plant will employ 150 to 200 local workers, supervised by key personnel transferred from Perfection's two Cleveland plants.

New Facilities Expected to Boost Company Production

A dozen skilled crewmen of the North Texas Tank Co., Denton, Texas, stepped off the assembly line recently and got to work on additional shop space for fabrication of the company's butane and propane tanks.

Rising in Denton is the steel framework of a new 35 by 175-ft shop addition for production, chiefly, of 6000-gal. L.P. gas storage tanks.

The new facilities also will substantially boost the already large production of delivery units, domestic tanks and motor-fuel tanks for farm tractors, trucks, buses, autos, irrigation pumps, materials handling machinery, oil-field equipment, and other machines. These tanks are custom fitted to the latest model of any rolling or stationary equipment.

New facilities of North Texas Tank Co. are expected to boost the already large production of delivery units, domestic tanks, and motor-fuel tanks for farm tractors, trucks, buses, autos, irrigation pumps, materials handling machinery, oil-field equipment, and other machines.

Parkhill Opens Offices In San Marino, Calif.

The Parkhill Co. has opened new offices at 2264 East Huntington Drive, San Marino, Calif. This location will be headquarters for the engineering and sales of the Parkhill line of L.P. gas equipment.

Manufacturing facilities for the production of the Parkhill hose nozzle, safety tanks, vaporizers and other LPG equipment will be maintained in Los Angeles.

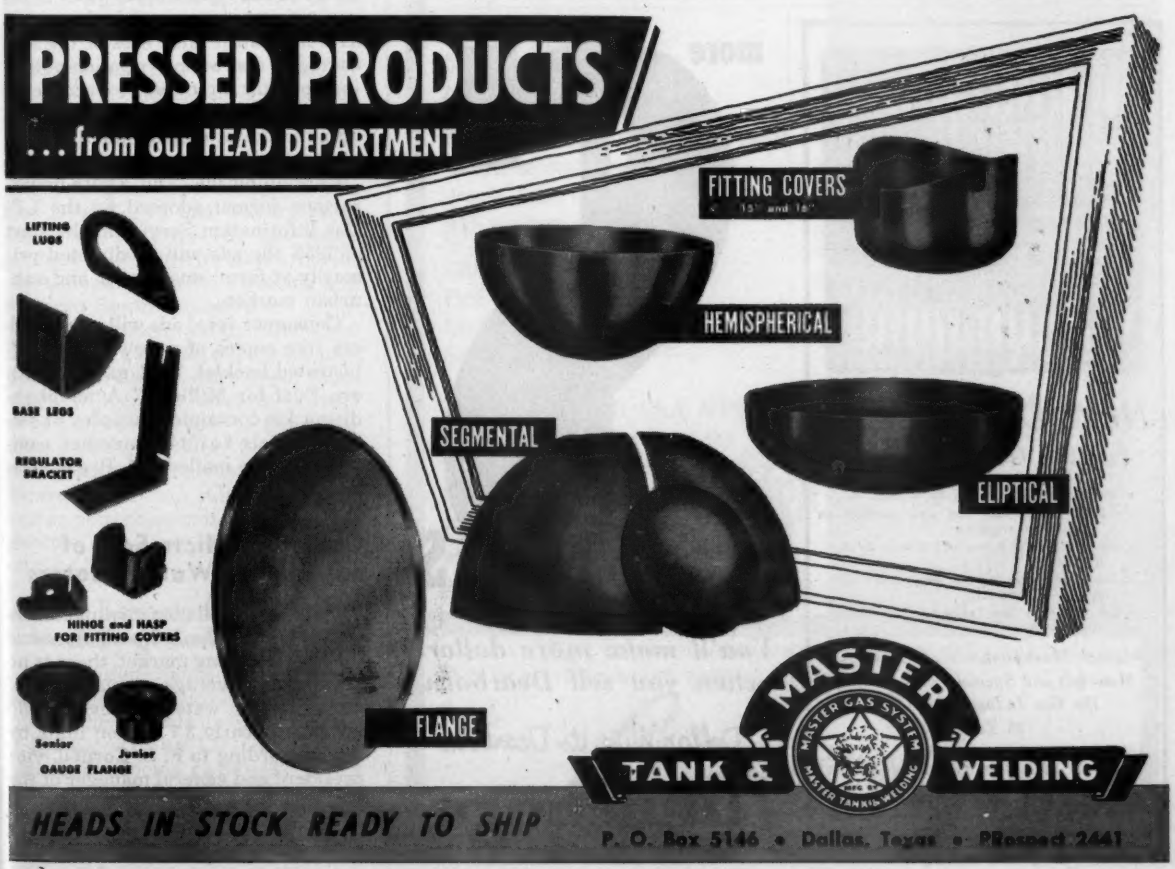
R. L. Parkhill, now heading up the expanded operation, states the organization will manufacture and distribute nationally a wide range of products for the storage and control of LPG.

The company will be licensed to operate under the original Parkhill-Wade patents. C. L. Parkhill, cofounder of the original Parkhill-Wade Co., will be associated with the company on a consulting basis.

LPG Advertisements Aimed At New Heating Customers

"Over a million homes per year are switching to cleaner, safer gas heat!"

With this headline, LP-Gas Information Service advertisements will "turn on the heat" this summer in the LPG industry's campaign to win



HOW TO FINANCE YOUR EXPANSION PROGRAM...

—by tapping America's vast pool of available investment capital—ready to buy securities in established, profitable companies.

We are well equipped to serve companies whose immediate capital needs are from $250,000 to $1,000,000.

Write Horace I. Poole, Manager of our Corporate Finance Dept., explaining your requirements or ask for our booklet K2.

•

EISELE & KING, LIBAIRE, STOUT & CO.

Established 1868

Members of New York Stock Exchange

50 BROADWAY, NEW YORK 4, N. Y.

HAnover 2-6660

Full-page advertisement scheduled for late summer and early fall insertion in farm journals by LP-Gas Information Service. Cartoon format has proven very successful.

space and central-plant heating customers for the cold-weather months ahead.

In announcing the new ad series, James E. Pew, president of the National Council for LP-Gas Promotion, said L.P. gas ranges, water heaters, refrigerators, and incinerators, as well as such farm uses of the fuel as tractor operation, irrigation pumping, poultry brooding, tobacco curing, and milk-can sterilization will also receive prominent mention and illustration.

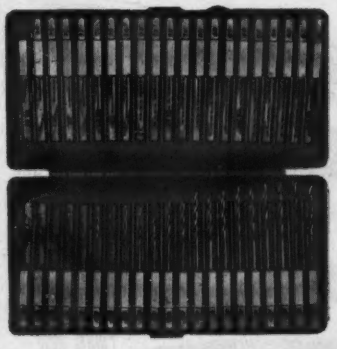
Continuing the "Did You Know?" cartoon format adopted by the LP-Gas Information Service at the start of 1955, the ads will be directed primarily at farm, small town, and suburban markets.

Consumer-level ads will offer readers free copies of a new 24-page illustrated booklet, "L.P. gas . . . Modern Fuel for Millions." A merchandising kit containing samples of tie-in materials for the summer campaign will be mailed to L.P. gas marketers.

Cornell Predicts Sale of 3.7 Million Water Heaters

If the gas appliance manufacturers of the nation plan properly to serve the mushrooming market, there is no reason why average annual sales of domestic gas water heaters should not reach nearly 3.7 million units by 1970, according to F. S. Cornell, vice president and general manager of the A. O. Smith Corp.

Mr. Cornell pointed out that the automatic gas water heater took



NEW DRILL CASE

For the Gas Serviceman

- Holds 41 drills — sizes 40 to 80.
- Each thumb drill has size stamped on handle in sequence.
- Each drill fully protected. Cannot break in case.
- Servicemen can carry in hip pocket. All metal — compact.
- Set will take care of general servicing requirements.

Original Manufacturers of Conversion Materials and Special Tools Serving the Gas Industry for Over 35 Years.

Write for Catalog

ANDERSON and FORRESTER

3563 LARIMER STREET, DENVER, COLORADO

more $ $

You'll make more dollars when you sell Dearborn

Dollar-Wise it's Dearborn

Dearborn®

1700 West Commerce St., Dallas, Texas

nearly 18 years to achieve any real acceptance, attained annual volume of an average 426,000 between 1936-1940. Then pent-up demand of World War II years burst forth in the 1946-1950 period when annual volume jumped to 1,689,000—a four time expansion.

Outlining the factors behind his expectations of a 1970 sales goal, Mr. Cornell said, "Since 1950 we have averaged over 2 million units per year. We see increasing demands—not any letup—if we do our planning properly.

"Predicated upon factors of population, household formations and the annual birth of more than four million babies in this country, we can confidently see ahead for 1970 an average annual volume of at least 3,682,000 units—more than double the 1946-1950 rate."

LPG Marketer Obtains New Supply Source

Martin L. Dowell, president of the Lun-Dow Co., Inc., Tulsa, has announced that the Lun-Dow Co. has been awarded the contract to market the entire output of the Kimball Gas Products Co.'s gasoline plant located at Kimball, Neb. The plant is approximately 50% completed at the present time and is expected to be on stream about the middle of next month.

The acquisition of this plant by Lun-Dow Co. enhances its position in petroleum marketing circles inasmuch as this additional volume of product, as well as the geographic location of this material will enable Lun-Dow Co. to take advantage of numerous inquiries for petroleum products in western Nebraska, northeast Colorado, eastern Wyoming and southern South Dakota.

Is is also announced that Lun-Dow Co. is undergoing an expansion program, enlarging its sales department which will enable them to provide more personal service to their customers in the fertilizer field including anhydrous ammonia, ammonium nitrate, ammonium sulphate, etc., as well as petrochemicals, LPG, natural gasoline, and other petroleum products.

Service Schools Cover A Variety of Subjects

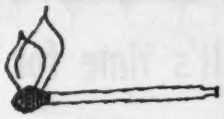
Carburetion, liquid transfer, combustion burners, and controls were some of the subjects under discussion at the Kentucky LP-Gas Service Schools conducted recently at the University of Kentucky, Lexington, and Murray State Teachers College, Murray according to Jess B. Ward,

Anybody cold in your territory?

(Good prospects who don't warm up to your sales package?)

turn on the heat with Commonwealth

(The sales approach that warms 'em — and the product that backs it up!)



The Commonwealth L.P.G. heater story will melt even an ice cube. Look what you have to offer your customers.

COMCO FORCE-FLO
The only forced air adapter accessory for vented wall heaters on the market.

THE MOST COMPLETE L.P.G. LINE
6 models, from 28,600 BTU to 60,000 BTU. Single or dual face.

EASE OF INSTALLATION
Plenty of room for connections, casing and heat exchanger in one unit.

EXTRA LONG LIFE
Sturdy, heavily ribbed heat exchangers, die formed.

BEAUTY AND PERMANENCE OF FINISH
Neutral decorator grey baked enamel finish that harmonizes with any room decor.

TROUBLE-FREE OPERATION
Each Commonwealth "E" line heater is actually fire tested before shipping.

THE MOST CURRENT A.G.A. APPROVAL
Commonwealth heaters meet the most recent requirements for vented gas, recessed heaters.
Plus sales and service policies as reliable and established as the company itself.

CONTROLLED HEATING SPECIALISTS FOR MORE THAN A QUARTER CENTURY

Write for your Commonwealth WARM UP story today.

Commonwealth COMPANY

Dept. L 2127 Commonwealth Avenue Alhambra, California

It's time for YOU to get in the parade!

sell Martin Gas Heaters

the leaders in warmth, safety and satisfaction

8 Fully Vented Heaters
15,000 BTU
to 85,000 BTU

SEND FOR NEW DEALERS SALES AIDS

AUTHORIZED DEALER MARTIN GAS HEATERS

23 Unvented Heaters
10,000 BTU
to 50,000 BTU

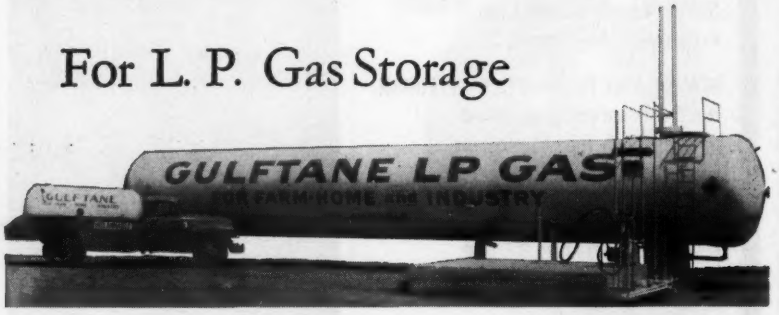
SELL THE COMPLETE MARTIN LINE

Our 50th Anniversary Year

All heaters AGA approved for natural, liquefied, and manufactured gases

MARTIN STAMPING & STOVE CO., Huntsville, Ala.

For L. P. Gas Storage



LEADING FIRMS PICK *NELSON*

There are over 250 SYSTEM NELSON bulk plants for the storage of LP Gas and Anhydrous Ammonia located in 25 states. Leading bulk plant operators have found that it pays to deal with an organization that has the experience, equipment and engineering skill necessary to do a complete, top quality job. Take advantage of this extra value and service on your next storage problem. Contact us for a meeting with an experienced sales engineer.

SYSTEM NELSON

EDWARD S. NELSON, Ltd.
Dept. L-1
Clarksdale, Mississippi

THE LEADING NAME IN THE BULK STORAGE FIELD!

chief L.P. gas inspector, office of the state fire marshal.

Co-sponsored by the Kentucky LP Gas Association, some of the instructors include:

Don Welch and Charles Loftin of the Warren Petroleum Co., teaching carburetion; Charles Corken, Corken's Inc., teaching a course in liquid transfer; and C. L. Gobrecht, Shellane Gas Co., handling the subject of combustion burners at the university while Hershel Harrah, Pyrofax, instructed on the same subject at the Murray school.

Controls were discussed at the university by A. L. Kilka, field engineer, Cleveland branch, General Controls Co., while the subject was handled by Edward O. Abel, manager, Product Service Division, Milwaukee Gas Specialty Co., at the Murray school.

Phillips, Magnolia To Construct New Gas Plant

Construction is scheduled to begin soon on an ultra-modern natural gas liquids extraction plant to be owned jointly by Phillips Petroleum Co. and Magnolia Petroleum Co.

Located approximately three miles southwest of Lindsay, Okla., the plant will be operated by Phillips. It will extract natural gasoline components and liquefied petroleum gas from natural gas produced from the northwest Purdy, west Lindsay and Bradley area fields, the latter being a new deep multi-zone discovery by Phillips last year.

The dry natural gas from the plant will be delivered to a new 140-mile 24-in. pipeline to be laid by Transok Pipe Line Co. to Tulsa to supply the Public Service Co. of Oklahoma's generating station.

Janitrol Holds 1955 Service School Series

The annual series of eight factory service schools was held in May at the Janitrol Heating & Air Conditioning division's main plant in Columbus, Ohio. Members of the Janitrol dealer organization from all over the United States and Canada received refresher courses on older equipment and learned the service needs of all new items.

Each school, of a week's duration, was divided into three sessions—gas heating, oil heating, and summer air conditioning. Instructors in the course were members of the Janitrol engineering staff, who used the firm's laboratories, as well as the production line, for practical demonstration teaching.

DEALERS!!

Enterprise is built to please women!

Enterprise

Finest . . . **PRODUCT**
Best . . . . **PRICE**
Most. . . . **PROFIT**

MODEL 1736

FEATURES GALORE!

The glamorous appearance of the 1955 Enterprise is made even more glamorous by the satin chrome finished back panel, with automatic clock and contoured oven doors. The acid resistant white porcelain Enterprise range is the pride of any woman's kitchen. The Enterprise range sells itself to your customers because it is, and looks the top quality range it was built to be. The Enterprise range is built expressly for the modern woman.

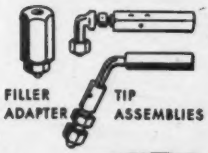
PHILLIPS & BUTTORFF MFG. CO.
NASHVILLE ● TENNESSEE

B-91

PROPANE TORCH

Mutual

YOUR FIRST CHOICE



SOLDERING, BRAZING, SWEATING, MELTING

The handiest torch you have ever seen. Especially useful for jobs where larger tanks or connecting hoses would hamper or endanger workmen. The B-91 Torch can be held in one hand with ease.

This Mutual Portable Torch is ready for instant use; generates in any weather. No pumping or priming. No warm up or sooting. Flame won't blow out. Easy and safe to light and control. Heats up to 2300 degrees F. Over 4½ hours continuous use in the cylinder. Fill it yourself for approximately ten cents — nothing to throw away. Cylinder meets ICC regulations and is equipped with fusible plug.

Try it! Get the complete B-91 Kit. Sell it on its labor saving merits. Sell it to plumbers, electricians, garages, linesmen and sheet metal shops. Display it in your store window. Use the B-91 as a leader; you'll be surprised with results. SEND TODAY for complete catalog and prices on all Mutual equipment.

Member L.P.G.A.

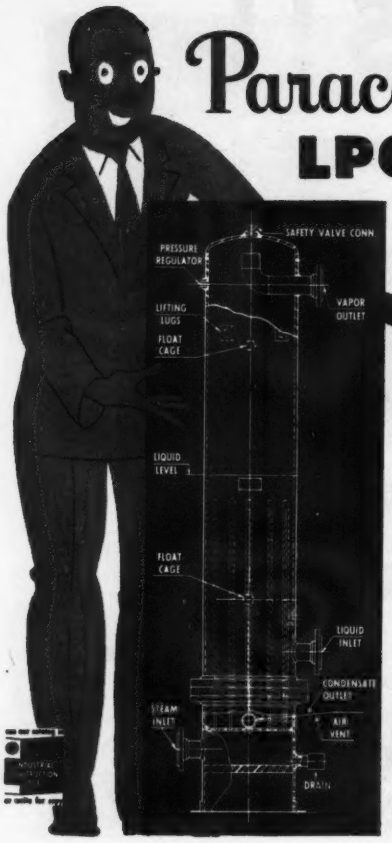
INSTANT **HEAT**

NO PUMPING – NO PRIMING

Mutual
LIQUID GAS EQUIPMENT CO., Inc.
17129 S. BROADWAY, GARDENA, CALIFORNIA

Paracoil SERIES 48E
LPG vaporizers
(STEAM TYPE)

FOR INDUSTRIAL AND UTILITY INSTALLATIONS



CHECK ✓ These Points of Proven Superiority...

- ☐ HIGH OUTPUT CAPACITY IN MINIMUM FLOOR SPACE
- ☐ NON-FREEZING, FAST DRAINING CONDENSATE SYSTEM
- ☐ OPERATES UNDER AUTOMATIC CONTROL
- ☐ ENTIRELY SAFE—NO OPEN FLAMES—USES LOW PRESSURE STEAM
- ☐ STANDARD PRODUCTION MODELS TO 6000 G.P.H.

DESIGN: ASME STAMPED, PAR U-69, N.B.F.U. PAMPHLET 58

Write for additional data and prices.

DAVIS ENGINEERING
CORPORATION

1058 East Grand St., Elizabeth 4, New Jersey
30 Rockefeller Plaza, New York 20, New York

why take chances?

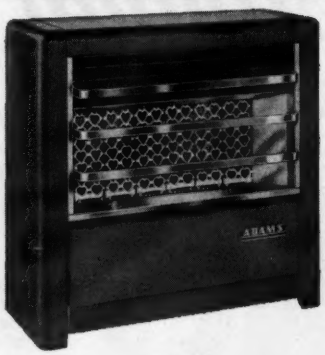
NATIONAL BOARD OF FIRE UNDERWRITERS advises: "Gas or Liquid shall not be vented to the atmosphere to assist in transferring contents of one container to another."

Good customers are hard to get. Don't let them be fooled! Help eliminate dangerous venting. Show them how to fill truck or tractor fuel tanks and small cylinders in 1/10 the time, save at least 4.0% of fuel cost, in safety.

KRUG Vapor Pumps help you profit two ways — sell to your customers, or use in your own operation to transfer L-P Gas with safety and at Low-Cost.

Find out about KRUG PUMPS, today, ask your Supply House, or write to:

D. H. KRUG COMPANY
BOX BP-7
MADISON,
SOUTH DAKOTA



ADAMS

RADIANT HEATERS

Beautiful styling with fine heating qualities. A solidly built unvented cabinet circulator. Smooth burner operation. Four sizes.

Write for Your Catalog

ADAMS BROS. MFG. CO., INC.
Established 1898
1500 NORTH AVE., W. PITTSBURGH 33, PA.

Week-Long Show Displays Emergency Equipment

LPGA's West Coast office, in cooperation with the Federal Civil Defense administration recently staged a week-long show, displaying emergency equipment. The display was at the Civic auditorium, San Francisco, during the eighty-second Annual Forum National Conference of Social Work.

Institutional cooking equipment, together with typical L.P. gas equipment, pointing up the ease of conversion under emergency conditions, was on display. Local dealers and distributors cooperated in the supply of appliances and equipment.

R. E. Meeder, LPGA director from California, said, "This show provided an opportunity for the L.P. gas industry to tell its story of convenience and adaptability to an important audience from across the nation and it pointed out to them how our industry could, under emergency conditions, provide fuel for mass feeding.

Years of Experimentation Results in LPG Transport

Several years of experimentation by Gorbett Bros. Steel Co. has produced an LPG transport and bobtail tank incorporating many new features which have proved to be both economical and practical to operate.

The present production facilities of the company have been greatly expanded and mass production techniques will be utilized in the production of the new transport and bobtail tank models. Cleon Gorbett, president of the company, says, "by incorporating the techniques of mass production we are able to produce in quantity a quality tank that is brand new in its field at a price that is competitive."

Prize Ranch-Style Home Equipped By Rheem Co.

A western style ranch house, fully furnished with Rheem plumbing and heating equipment and Rheem "Wedgewood" appliances, has been designated as the first prize in a campaign which has been launched as a cooperative effort between White King Soap Co. and Rheem Manufacturing Co.

The theme of the contest will be the naming of the prize Rheem "Dream Home," cost of which will be borne by the Rheem Manufacturing Co. The deluxe prize home will be

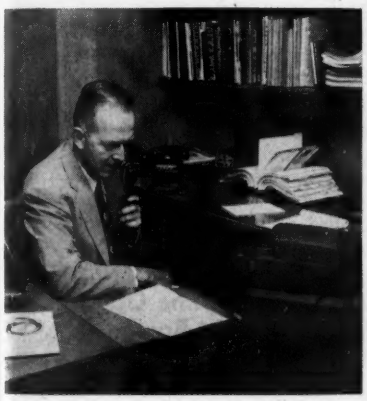
equipped with a new "Rheemglas" water heater, a water softener, air conditioning equipment, the "Wedgewood" built-in clothes dryer and the built-in gas range.

Representing Rheem in working out the promotional plans for the contest were Richard O. Pallin, sales manager for plumbing and heating equipment, western region, and Ronald F. Barlow, southern California regional sales manager for the Rheem-Wedgewood division. The promotion was conceived and is being carried out under the direction of Lew Lacy, sales promotion manager for White King.

Pond-Johnston & Co. Moves Operation to New Location

Pond-Johnston & Co., pioneer L.P. gas equipment distributor of Mobile, Ala., has recently moved to larger quarters at 403 Beauregard St. The new location provides space for present requirements and for future growth.

The company was established 18 years ago by Harry S. Pond, the president and general manager. The company's operations have expanded over the years from strictly local coverage to include the states of Louisiana, Alabama, Mississippi, Georgia, Florida, and Tennessee.



Harry S. Pond in his office of Pond-Johnston & Co. at its new location in Mobile, Ala. The company was established 18 years ago by Mr. Pond, the present president and general manager.

In addition to the equipment required for construction and maintenance of bulk plants and the consumer service items, the company devotes much time and effort to the promotion of carburetion. Training schools are held periodically in the installation and servicing of Algas carburetion equipment.

How to render "all-out" service to 9000 accounts

. . . with a fleet of 9 trucks!

The Answer:

RCA 2-WAY RADIO

In 1953, Suburban Propane Gas Corporation added a mobile radio system to its "mobile gas mains" serving some 9,000 accounts in its Mahwah, N. J., branch. To relay service requests to trucks and to receive requests from drivers, RCA Fleetfone 2-Way Radio was installed in 3 tank trucks, 2 cylinder delivery trucks and 4 general purpose trucks.

"I was quite certain radio could help our business," says President Mark Anton, "and results seem to be confirming my hunch. Our men who use radio have found it saves them considerable time and increases our service to customers."

Suburban Propane drivers are so proud of their radio they demonstrate it to customers. It generates the feeling that the company is going "all-out" to render service and helps promote good will.

Regardless of the size of your operation you will be pleased with the extended coverage and time savings RCA Fleetfone 2-Way Radio makes possible. It's always on the job, soon pays for itself out of savings—will pay you dividends.

RCA 2-Way Radio is a quality product, precision-made to assure top performance in all climates. A rugged 16-gauge steel case houses the compact transmitter-receiver for protection against all road hazards. Operation cost is low. And remember, the RCA Service Company is at your service wherever you are. Why not get more information?

For the Best in 2-Way, Say "RCA"

RADIO CORPORATION of AMERICA

COMMUNICATIONS EQUIPMENT, CAMDEN, N. J.

USE THIS HANDY COUPON FOR LITERATURE

Radio Corporation of America
Dept. T-204, Mobile Division
Camden, N. J.
In Canada: RCA VICTOR Company Limited, Montreal

☐ Please send free literature ☐ Have Communications Specialist call

Name..... Title.....

Company.....

Address.....

City..... Zone..... State.....

Thermolaire

The Thermolaire line includes vented and unvented circulators, stationary radiant heaters and portable heaters in variety of sizes. All AGA approved. Cast iron burners with interior baffle and raised ports, radiants interchangeable, chrome hearths, interior of circulators baffled for cooler cabinet. Manual and automatic heat controls available. Phone or write for prices and illustrated literature.

Famed Thermolaire gas heaters are an old, established complete line which commands wide popularity wherever sold. Thermolaire heaters are easy to sell because they have strong customer appeal in appearance, performance and price.

Thermolaire styling and design are extra attractive, with a soft, mellow coppertone baked enamel finish that harmonizes with other furnishings. Better still, Thermolaire is a highly efficient and serviceable heater, thus combining heating comfort with beauty.

BIRMINGHAM STOVE & RANGE COMPANY

Builders of Fine Stoves For Over 50 Years

BIRMINGHAM, ALABAMA, U.S.A.

10 DAY TRIAL OFFER

Try the Martin Tube Bender on the job for 10 days. If you are not satisfied with its performance, return it to us and we will not bill you.

If you decide its the best bender you ever used and keep it longer than 10 days, we will bill you the regular price of $19.50 plus postage and insurance charges.

BEND TUBING EVENLY in close quarters with little effort

Dimensions: 9½ x 3½ x 3½ — weight 4½ lbs. Two sizes handle all jobs: #5 bends ⅜" and ½" o.d. soft tubing, #5A bends ½" and ⅝" o.d. soft tubing. Each without roll changes!

All bends are on 1¾" radius and are practically distortionless. Gear arrangement operated by rachet lever rolls the bend in the tube easily, makes bends in either direction by turning tool over and operating from other side. Sturdy — compact.

Write today for details on our free trial offer.

W. H. MARTIN Tube Benders

Box 692, Owensboro, Kentucky

1st

In units sold for use with LP gas

Dollar-Wise it's Dearborn

Dearborn®

1700 West Commerce St., Dallas, Texas

Thirty-Two Years' Unbroken Service Awarded By Scroll

William R. McLaughlin, southwestern regional sales manager of Rockwell Manufacturing Co.'s Meter & Valve Division, has received a scroll from the executive committee, Southwestern Gas Measurement Short Course, at the University of Oklahoma in honor of 32 years' service to the course.

The scroll was presented at a dinner held at the University, for past chairmen of the short course and their wives. The dinner marked the opening of the 30th course.

Mr. McLaughlin was recognized as the only past chairman who had participated in every short course since the first one in 1924.

Two Records Set By Gas Furnace Shipments

Gas-fired warm air furnace shipments during April set two new records for the second month in a row. One was an all-time high for the first four months of the year, the other a new record for April shipments, according to the Gas Appliance Manufacturers Association.

Some 219,300 units were shipped to dealers and distributors during the first four months, an increase of 50.1% over the same period in 1954. Shipments in April alone set a record of 63,900 units for a gain of 46.6% over the same month last year, which had been the all-time April high.

Automatic gas water heater shipments set an all-time high for the first four months with 962,500 units, a 32.2% increase over last year. April shipments also were the highest on record for that month with 260,100 units, a 29.5% increase over last year.

Superior Propane Opens Bulk Plant At Barrie, Ont.

Superior Propane Ltd.'s 6-million-gal. projected sales figure for the current fiscal year received a boost with opening of a bulk operation at Barrie, Ont.

The 30,000-gal. bulk storage tank took its first delivery recently—propane from the British American Oil Co. refinery at Clarkson, Ont. A large cargo tank wagon with a propane capacity of 5000 U. S. gal. will run a shuttle service between the refinery and Barrie plant.

The new bulk plant at Barrie will provide increased delivery of bulk gas in and around Barrie for house-heating, industrial, commercial and farm use. Tobacco growers in Simcoe

The EXTRA FEATURES you get in *Service-Master*

make it your best service body buy

"FREEZE-FREE" HINGES
Bronze bushings are provided in door hinges to positively prevent binding.

CONCEALED FENDERS
Dirt, sludge, and water—thrown by the tires—can't reach compartment walls.

"HIGH-LOW" FLOOR
Provides added strength—easier handling of heavy loads.

"NO-BOUNCE" BINS
The hinged cover keeps parts in the bins, and provides an extra storage shelf.

"PUDDLE-PROOF" CARGO AREA
A full-width floor drain is built into the head panel.

Service-Master's competent look helps sell your service . . . reflects your discriminating taste.

Send for this FREE BOOKLET describing all the extra features you get in Service-Master.

Compare Service-Master . . . feature by feature . . . with any other make. See why Service-Master is the first choice of servicemen in all parts of the country.

Available in ½, ¾, 1, and 1½ ton sizes.

McCABE-POWERS AUTO BODY CO. POWERS
5900 NO. BROADWAY • ST. LOUIS 15, MO.

Send me the Service-Master "EXTRA FEATURES" booklet . . . and have nearest distributor furnish me local delivered prices.

Name_____

Company_____

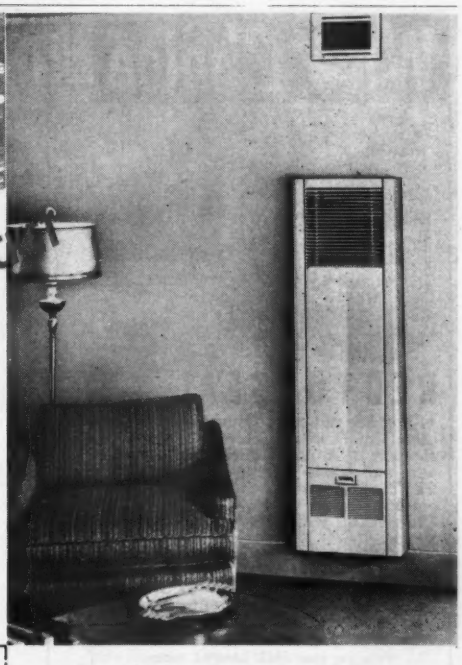
Address_____

City_____ Zone_____ State_____

3C

BUILT TO OUTLAST SEVERAL CHASSIS

with **HOLLY** *NarroWall*



Yes, Holly NarroWall vented recessed wall heaters can increase your L.P. Gas Sales and give you extra profits from the appliance sale itself. Holly's exclusive Secondary Heat Exchanger gives your customers more heating comfort.

AGA approved from floor to ceiling under American Standard for Central Heating Gas Appliances.

HOLLY MANUFACTURING CO.
917 S. Arroyo Parkway, Pasadena 2, Calif.
Please send me full facts on NarroWall with LPG.

Name_____

Address_____

City_____ State_____

NarroWall Wall Heaters are easily installed, factory-tested and fully guaranteed for service-free LPG operation.

ARMSTRONG HEATERS

AGA APPROVED for all Natural, Mixed Manufactured and L.P. Gases

THE NEW MODELS HAVE
- PLENTY OF EYE APPEAL
- PLENTY OF SALES APPEAL

1 — Modern in Appearance
2 — Pleasing to Live With
3 — Good Heat Producers
4 — Sturdily Built
5 — Vented or Unvented
6 — Radiant or Circulating
7 — 8,000 to 60,000 B.T.U.

Write for Literature and Price List on 60 different models and sizes.

New VENTED CIRCULATOR
Model 7150 has 100% gas tight exchangers that provide dry, clean heat—eliminate sweating walls and windows. 16¾" wide, 16" deep, 21¼" high. 15,000 B.T.U.
Model 7200 — 19½" wide. 20,000 B.T.U.

WHEN IT'S AN ARMSTRONG DEPEND ON IT! IT'S THE BEST OF ITS KIND

ARMSTRONG PRODUCTS Corp. Dept. BP Huntington 12, W. Va.

Wise Choice

for Leak-Proof LPG Installation

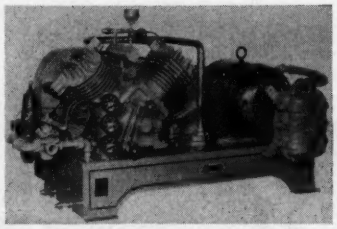
RECTORSEAL #2

• You are not only assured leak-proof installations with Rectorseal #2 but its cleaner, smoother application, its economy and waste-free use make it your BEST choice of thread sealing compounds.
CLEANER, because it is not "messy" to use.
SMOOTHER, because it's finely ground and homogenized.
ECONOMICAL, because there's no waste. It doesn't settle out. Original consistency restored with Rectorseal or any good grade lacquer thinner.

Write for your FREE SAMPLE today, giving name of your jobber.

RECTORSEAL, Dept. "A"
2215 Commerce St. Houston 2, Texas

RECTORSEAL # 2
MAKING THE L.P. GAS INDUSTRY SAFER



COMPRESSORS

• *Repaired*
• *Rebuilt*
• *Exchanged*

We overhaul and repair *all types* of compressors used in transfer of LP-Gas. Specialists in this work for 15 years.

One-Two Day Service on Most Repair Jobs.

•

Exchanges Arranged.

•

We Maintain Complete Stock of Brunner Parts.

•

UNITED ELECTRIC & REFRIGERATION
1013 West 11th St., Los Angeles 15, Calif.
Phone Richmond 8-6022

county will be able to draw on the new bulk gas supply for curing, increased supplies will be available for chicken brooding and crop-drying.

Stenner To Serve As President of Sterlairco

David E. Feinberg, president of United States Air Conditioning Corp. Minneapolis, and John E. Reed, chairman of Sterling Radiator Co. Inc. of Westfield, Mass., have announced the formation of a new company, Sterlairco Inc., owned jointly by U. S. Air Conditioning and Sterling's Heat Specialties Division. The new company will have its main office and factory in Westfield.

G. H. Stenner, president of Sterling's Heat Specialties Division, will also serve as president of the new company. C. E. Scott, will be vice president and general manager.

News Notes

B. C. Carter, executive vice president of Food Machinery & Chemical Corp., San Jose, Calif., has announced that his company's offer to acquire the common stock of Chiksan Co. has been accepted by holders of more than 93% of the outstanding shares of Chiksan common stock.

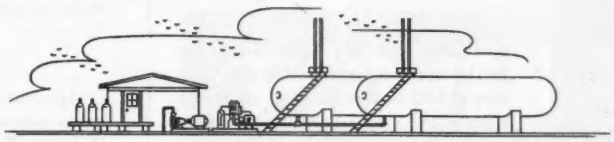
Fifty family housing units located at the U. S. Naval Auxiliary Air Station, Fallon, Nev., will be supplied with 87,400 gal. of LPG, according to the District Public Works office, San Bruno, Calif.

The Delta Butane Gas Co. will erect a modern sales room and office at 605 Walnut St., Helena, Ark., and move its headquarters from West Helena to the new location. Murray Rasberry said the new building would be started at once.

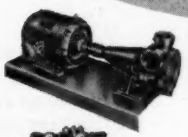
American Propane Sales of Seattle has been purchased by Home Gas Co. and Liquefied Gas Corp. of Tacoma and Seattle, Wash.

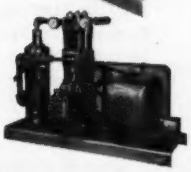
Among the five petroleum companies which were recipients of the National Safety Council's 1954 Public Interest Award is The Carter Oil Co. which sponsored hundreds of radio spot announcements featuring safety, and placed accident prevention ads in 150 newspapers. The company's entire schedule of 212 outdoor posters for the month of July was devoted to "Hold Back Your Speed—Hold on to Your Life" posters.

VISIONS OF EXPANSION-



INCLUDE CORKEN EQUIPMENT, FOR SURE!





More and more sturdy pumping equipment by Corken is going into expanding installations and new bulk plants. Today's modern gas dealer favors these pumps for the way they defy wear, their ease of upkeep, their size and appearance. They know pumps made by Corken are advanced in design, and designed specifically for their advancing industry.

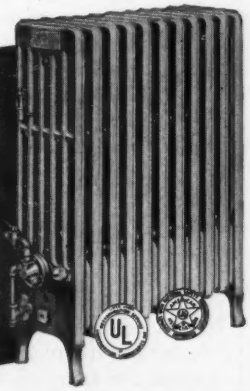
The Corken reputation of fair dealing and product guarantee is yours to accept—Let Corken experience be of service to you, it's freely given—and can be profitable too!

CORKEN'S 206 E. GRAND • OKLAHOMA CITY 2, OKLAHOMA
Eastern Office 935 Madison Ave. • Plainfield, N. J.

You have NO direct competition

when you offer

CLOW *Gasteam* RADIATORS



for complete or auxiliary heating of

Homes, Offices, Apartments, Stores, Shops, Schools, Motels, Shipping Offices In Industrial Plants, Trucking Terminals, Offices in Warehouses, Gas Stations, Restaurants, Amusement Centers

What's so DIFFERENT about steam radiator heat?

ANSWERS

IT GIVES THE USER:

1. A combination of radiated and circulated heat.
2. It "holds its heat"—heats more evenly.
3. More than 30 sizes to meet job requirements—no overheating.
4. More heating surface—better distribution of heat.
5. Cast iron construction—lasts and lasts and insures noiseless operation.
6. Greater fuel economy—because mild, even heating provides greater comfort with lower room temperatures.

IT GIVES YOU:

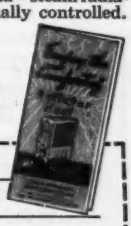
1. *More dollar profit*—More units sold for every job.
2. *Less service cost*—More durable and easier to "get at."
3. *Better customer satisfaction*—Trouble-free operation.

JAMES B. CLOW & SONS P.O. Box 6600-A Chicago 80, Illinois

THEY MAKE THEIR OWN STEAM HEAT WITH LP GAS!

Why compete with others, trying to sell variations of the same type of heat? Sell Clow Gasteam Radiators and you will be offering the only thing of its kind—steam radiator heat, individually controlled.

LET US SEND YOU this booklet, describing the advantages of Clow Gasteam RADIATOR heat.



Name_____

Address_____

City_____ State_____

L-9

Servicemen from Kaw Valley Skelgas Inc. quickly installed copper tubing from cylinders of LPG to heat metal for the stereotypes at the Topeka Daily Capital after a gas line break. Working are, left to right: Bud Weaver, C. O. Wiscombe, and Gene Sears. The paper was printed in time to make the mail trains.

LPG Puts Topeka, Kansas Newspaper to Bed on Time

THE Topeka, Kansas, *Daily Capital* hasn't missed an edition in its 76-year history. But it had a near-miss on February 20.

During below-freezing temperatures the gas supply line furnishing heat for the Topeka area broke about 22 miles east of the Kansas capitol. Newspaper printers were just coming to work when the break occurred at 3 p.m.

As the gas pressure sank away, metal pots used for linotypes, stereotypes, and engraving equipment began to "freeze." By working at top speed and doubling up on printing job assignments, the men were able to cast 10 pages before the pots were cold.

Meanwhile, officials of the paper contacted the local Skelgas LPG dealer for help. After receiving permission from the fire marshal to make the installation on the roof of the building, gasmen began an emergency set-up.

By 9 p.m. the stereotype foundry was ready to cast plates. Burners on 16 gas-heated linotypes had been changed and the machines connected to the L.P. gas supply. They were urgently needed to relieve the overload on five electric linotypes that had remained in service.

As a backstop, circulation men on the paper had made arrangements for the paper to be printed in Kansas City. And nearby papers in Lawrence and Lyndon also offered the facilities of their printing plants.

The assistance was not needed, however. The first edition came off the press in skeleton form. But two subsequent editions were printed with the full number of pages and finished in time to make mail trains. Distribution to the 65,000 subscribers was completed on normal schedule.

Topeka hotels, crowded because the Kansas Legislature was in session, also used L.P. gas to prepare meals. In homes, kerosene stoves were retrieved from attics and used, while a heavy increase in the use of electrical heating appliances caused an overload on power lines. There were periodic failures in power supply in some areas of the city and surrounding small towns.

Approximately 250 experienced gas servicemen were assigned to repair the pipeline break. By 10 a.m. the following day, connections had been checked in all but 800 homes of the 32,000 homes affected by the gas line break.

To speed the work of the servicemen, National Guard jeeps were supplied so homes could be placed back in service promptly. Police and National Guardsmen assisted gas company employes, and locksmiths were called in to gain entrance to some homes.

The first sizeable German-built tanker to carry LPG has been launched by the Ottensener Eisenwerk AG of Hambourg. The tanker, which can carry about 1000 tons of LPG in special compartments, will have a service speed of more than 13 knots.

Appointment of A. L. Hawley Jr., sales manager, Metalbestos division, William Wallace Co., Belmont, Calif., to the National Council for LP-Gas Promotion has been announced. He has been named to the group by the Liquefied Petroleum Gas Association.

National Butane Co. has opened a new office in Greenville, Ala., according to an announcement by Horace Spottswood, vice president and general manager. The new office will be managed by Carl Speed. National Butane has other offices at Selma and Evergreen.

United Utilities Inc., Kansas City, Mo., will enter the L. P. gas business shortly as a result of the purchase of six LPG companies supplying service in Illinois. The companies serve 14,400 customers.

The name of Wallace Davis & Co., Houston advertising agency, has been changed to Ullrich & Brown. Edward L. Ullrich and Douglas H. Brown, two company employes, purchased the agency in August, 1954, and until April 1, 1955, operated the firm under the name of Wallace Davis.

Dunning Supply Co. of Gridley, Calif., has changed its name to Cal-Central Liquid Gas Co., according to an announcement by E. A. Becker, general manager.

Schreiner Service Station, Ogallah, Kan., has announced a new day and night service for propane and butane users in that area. The service is available seven days a week. The firm also sells, delivers, and installs 1000-gal. and 500-gal. propane tanks and propane appliances.

Kerschner's Skelgas Service Inc. has been formed in Hancock, Wis., with an authorized capital stock of 200 shares of common of no par value. Incorporation papers were signed by Myron and Monica Kerschner and Franklin and Bernice Cavanaugh, the latter having been named the registered agent for the corporation.

Butane-Propane

POWER SECTION

INSTALLATION • CARBURETION • SERVICING

Photo: Century Gas Equipment Co.

These combines were converted for the local dealer, Davies Machinery Co., by O. L. McClure, independent LPG carburetion specialist of Bakersfield, Calif. Mr. McClure does conversion work for a number of tractor agencies and dealers.

(For Part 2 of Carl Abell's tractor conversion series, turn to page 153.)

ZENITH expands its line of LP-Gas fuel systems

NOW IN PRODUCTION WITH FACTORY-ENGINEERED APPLICATIONS FOR MANY MODELS OF CHEVROLET TAXI CABS AND TRUCKS—PLYMOUTH TAXI CABS AND TRUCKS—DODGE TRUCKS—BRIGGS AND STRATTON ENGINES—LIFT TRUCKS—INDUSTRIAL ENGINES—GMC TRUCKS—INTERNATIONAL HARVESTER TRUCKS

—additional units under development—

The enthusiastic response that resulted from Zenith's entry into the Liquid Petroleum Gas field has necessitated an accelerated engineering and manufacturing program to meet the demand for a wider range of LP Gas systems.

This program is now well under way and, in addition to the units listed above, other factory adjusted and calibrated LP Gas Fuel Systems will be made available at an early date.

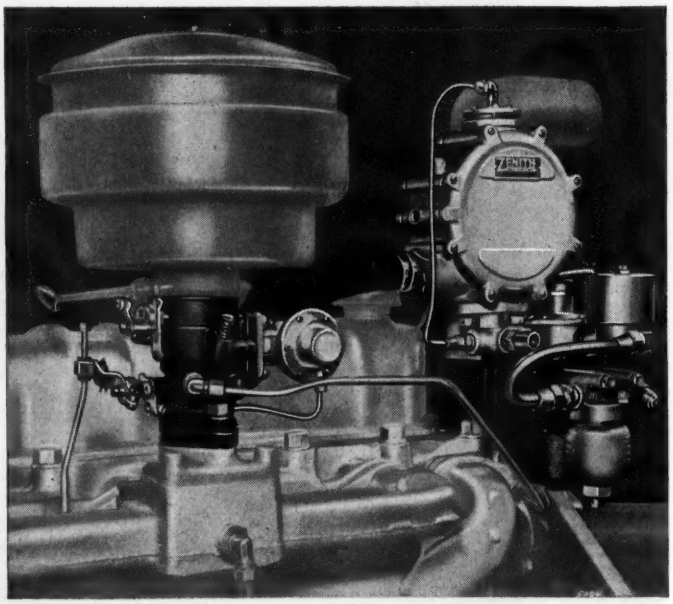
These installations are engineered for fast, simple application and comprise a compact grouping of the essential equipment for a good running job.

Zenith's factory-engineered installations eliminate the guesswork of how to make an installation and the hazard and unsightliness of miscellaneous plumbing under the hood.

If the Zenith* units now available do not cover your specific needs, let us know your requirements as it is altogether possible that the specific unit you require will be available shortly.

Remember, Zenith LP Gas Fuel Systems benefit from the uniformity of volume-production methods, nation-wide service facilities and the highest engineering standards. They are available through Authorized Zenith Carburetor Distributors. Complete information and prices can be obtained from your nearest distributor, or write the factory direct.

*REG. U.S. PAT. OFF.



ZENITH'S EXCLUSIVE PRODUCT FEATURES— *New carburetors for both straight LP and for LP gasoline installations. A carefully engineered fuel control with simple responsive fuel supply for full load, power and economy in part throttle range. Can have fixed orifices or an adjustment if desired.*

ZENITH'S EXCLUSIVE SALES ADVANTAGES— *Over 40 years' specialized experience in carburetion. Unmatched engineering and production facilities. Nation-wide service organization.*

ZENITH CARBURETOR DIVISION OF
696 Hart Avenue, Detroit 14, Michigan
Export Sales: Bendix International Division, 205 East 42nd St., New York 17, N. Y.

THE NAME Bendix AVIATION CORPORATION

BPN staff report

How to Sell the Farmer on Converting His Tractor to LPG

By Carl Abell
Editor

Selling a tractor conversion is like selling anything else —before you mention the price, you should build up in the customer (in this case the farmer) a desire for the item (a tractor conversion). Savings on fuel and oil, longer spark plug life, less maintenance and down-time are a few of the results of an LPG conversion that can be worked into a good sales talk. This is Part 2 of a series on conversion of tractors to LPG.

EVERY successful salesman in every line has his sales story all prepared before he talks to his prospective customer. It may not be a "canned" or memorized sales talk, but it does follow a carefully prepared and memorized plan.

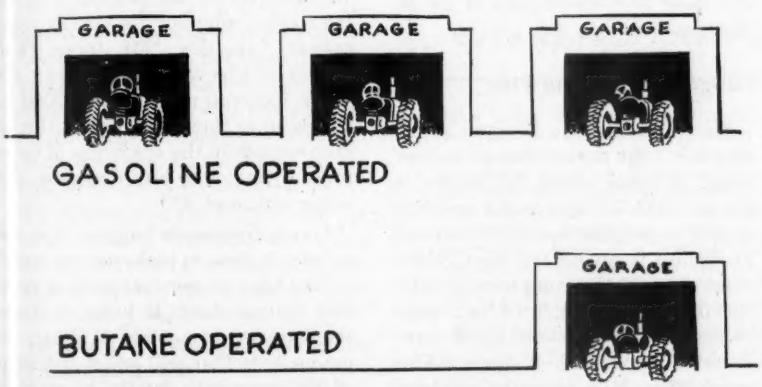
These sales talks vary with the personalities of the salesmen, but they are all alike in one particular. Before the price is discussed, the salesman builds up in the mind of his prospect a desire for what he has to offer. It may be life insurance, automobiles, farm equipment, or appliances; no matter what the product or service, the good salesman seeks to make it seem worth more to the customer than the money it costs, so the sale price will seem unimportant in comparison with the benefits which will follow the purchase.

The benefits of converting tractors to L.P. gas are impressive, particularly when they are carefully analyzed in advance and put into dramatic form. This is the part that requires the planning.

You are offering your customer a fuel which costs him a few cents per gallon less than the fuel he is now using. If you tell him that his saving in fuel costs will be five cents a gallon, or, if it so happens, eight cents a gallon, those few cents are not impressive. He will have a little difficulty in figuring why he should spend the $250 to $350 for a conversion, which you are going to ask him to spend, to save five cents or eight cents. Someone must convert that small savings on each gallon to a total amount figured after a long period. The human mind is inherently lazy, and the chances are rather strong that the prospect will not go through the mental labor of calculating the answer for himself.

The good carburetion salesman always prepares some figures for the customer which will make the transaction important to him, with which he can justify putting out the required amount of money to make the promised savings. The small saving on every gallon of fuel that the customer consumes adds up to a considerable number of dollars in the course of a year.

The dealer is also going to talk to his prospect about a substantial reduction in engine wear. Let's not consider this just in terms of generalities. How much wear can this customer expect to save? You know that the engine will last from two to four times as long before it is necessary to give it a major overhaul. If the farming conditions in your community require an engine overhaul every year your prospect knows this and you can impress him very favorably by telling him that the use of propane in his engine will enable him to operate two, three, or four years, as the case may be, before it is necessary for him to put out that large



Butane-operated engines will last from two to four times as long before it is necessary to give them a major overhaul. Thus, the conversion of the prospect's tractor from gasoline to LPG would pay off in the long run.

CENTURY

ESTIMATE

LP-GAS CARBURETION INSTALLATION

FROM: JOHN DOE CO. (Seller) 2751 Harmon Ave., Sales City, (Address) YALE 6214 (Phone)

CUSTOMER: FRANK FARMER (Name) Route 3, Bx. 5, Sales City, (Address) RURAL 512 (Phone)

Equipment to be converted:

Truck or Tractor Make	Engine Description
10 Oliver	Model 88

LP-GAS EQUIPMENT:	No. needed	Price each	Total	Remarks:
Converter	10	$65.00	$ 650.00	Based on 10 hr. day, 3 gal. per hr. per Tractor
Strainer	10	8.25	82.50	
Fuelock	10	12.50	125.00	
Carburetor: Kind				
3C LPG 1"	10	35.00	350.00	
Primer Switch	10	1.50	15.00	
Tank: Gals:	10	68.91	689.10	
Manifold	1			
Fittings	10	7.00	70.00	
Labor	10	16.00	160.00	
Miscel.				
TOTAL		214.16	$2,141.60	

		Daily	Monthly	Annual
Fuel Consumption: Gallons		300	9000	36,000
Cost per Gallon: Gasoline	20¢			
" " LP-Gas	14¢			
Difference in price: Per Gal	06¢			
SAVING:		$ 18.00	$540.00	$2,160.00

Months required to pay-out: 4 months will save $2,160.00

(Price of fuel subject to refinery price changes.)

ACCEPTED: Frank Farmer (Buyer)

ACCEPTED & APPROVED: John Doe Co. (Seller)

Fig. 1. Necessary calculations and proposals when entered on this form need only to be explained to become extremely convincing to the prospect.

sum of money on the overhaul of the engine.

Your prospect will also use less lubricating oil after he has put his engine on LPG. How much less? He probably changes his oil in his gasoline tractor at a period somewhere between 40 and 100 hours of engine use. Each oil change requires 5, 6 or 7 quarts, depending on the engine. Oil change practices vary with different tractor operators when using LPG, just as they do when using gasoline. Some change in 300 hours, others use the same oil for periods up to 600 or 700 hours and, on rare occasions, it is possible to operate the tractor safely on the 1000-hour oil change basis. In discussing this with your customer, it is better to be on the conservative side, avoiding wild promises and recommendations that might run into trouble due to deterioration of oil. But between his present oil change period and that which he can safely adopt with LPG, there is a considerable multiplication of hours. You will be quite conservative in promising him that he can eliminate three-fourths of his oil changes.

Longer Spark Plug Life

He will also have longer spark plug life if the proper change in heat range is made when the engine is put on LPG. In changing a gasoline engine to propane operation, correct procedure is to use the next colder spark plug if the compression ratio remains the same, and two steps colder than for gasoline if the compression is raised. If these colder spark plugs are properly serviced, they should last at least two years in ordinary operation. All of these savings added together make a substantial sum and your presentation is most effective if it is based on a careful calculation of all of these factors.

And remember that cost is not the only advantage to be gained in operating a tractor on LPG. Because less service work and mechanical maintenance is required, the tractor is available more continuously for productive use. This is particularly important in diversified farming where the tractor is in use a considerable proportion of the year. In any kind of farming there are certain critical periods in the year when the tractor must be available for uninterrupted service or a considerable loss is certain to follow. These losses are less likely to occur when the tractor is operated on LPG.

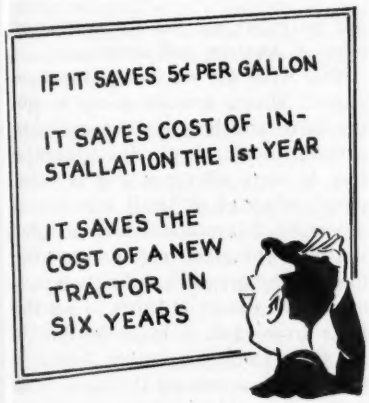
Pilferage

There is another very important talking point to all large-scale farmers who employ hired-help to operate their power machinery. Pilferage of the farmer's fuel is unfortunately a very common item of cost. This is easy with gasoline, and almost impossible with propane.

With these facts in mind, you have the basis for an opening statement that will really penetrate that prospect's mind. When you add the savings from lower fuel cost, lower oil consumption, less frequent engine overhauls, and all the minor benefits, the total is several hundred dollars per year. That's not just this year; it is every year thereafter. So while you are talking about something big, why not go all the way? If you can show that the cumulative savings over the life of the tractor will add up to the original cost of the tractor, why not use that as your opener? Like this: "Mr. Jones, your tractor will be worn out in about six years, and you must invest $2000 in a new one. How would you like to save enough in the operation of your present tractor to buy that new one when you need it?"

It very frequently happens that the farmer is slow to make up his mind on the basis of presentations of facts and figures alone. It helps to dress the facts up in terms of desirable equivalents that will enlist the help of the prospect's family in making your sale. For example, if your calculation shows that the operation of a farmer's tractor will result in a

saving of $350 per year and you happen to know that his wife is cooking on a second-rate or obsolete gas range, or on some other fuel which is not nearly so desirable, she can become a powerful ally in making the carburetion sale if you will talk to the farmer and his wife together and point out that this saving makes it possible for him to buy the most modern CP automatic range for his wife's kitchen. Or she may have a good range but your record shows that she needs a new water heater or that an improved means of heating part or all of the house would have a strong appeal to her. With a little knowledge of the customer's domestic arrangements, it is always possible to figure out an appeal which



will put the wife on your side and get a not-too-silent salesman working for you to help the boss-man make up his mind.

Even if the farmer's house is fully equipped with modern gas equipment, you can still enlist the support of his wife by pointing out that the saving will buy her a fine new coat and suit, or will go a long way toward financing a vacation trip which may appear very desirable in her eyes. Money alone is not always too important. What it will buy may be tremendously important, if you can hit on the thing that the man or his wife, or both, considers most desirable. Converting the tractor may be the means of financing something that they have long wanted to do and have never felt financially able to accomplish.

So much for strategy, now let us get down to tactics.

A salesman who trusts to words alone is piling up needless handicaps for himself. We all get our impressions through a variety of senses, and

Make YOUR conversions with

"CUSTOM-BUILT" TRACTOR TANKS

Tank J-10
(As illustrated)
for John Deere "60", 38 water gallons

Full vision . . . streamlined, "built-in" appearance, conveniently placed valves — These customer satisfaction features are part of every Santa Fe tractor tank. Write for prices and specifications.

Santa Fe ENGINEERING & EQUIPMENT CO.

2830 SAND SPRINGS ROAD • PHONE 3-8169 • TULSA 1, OKLAHOMA

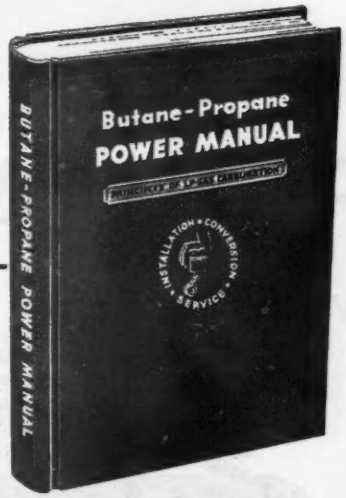
The "Know-How" you need for Installations and Conversions

Butane-Propane POWER MANUAL

Second Printing — Nov. 1953
With Revisions

Published by

BUTANE-PROPANE News



Here is the first authoritative guide ever published for the rapidly expanding LPG power market. Basic facts of engines, fuel, and power are given in easy-to-understand language; then careful directions and clear illustrations take you step-by-step through installations, conversions, servicing . . . *everything* needed in a practical working manual for practical men. Nearly 5,000 copies of the BUTANE-PROPANE POWER MANUAL have already been sold.

● ***A De Luxe Edition in handy pocket-size, flexible binding. 23 Chapters, 334 Pages, Completely Illustrated.***

Order Your Copy Now

Price $3.50 *(in California add 3% Sales Tax)*

We pay postage on orders accompanied by remittance. Orders from individuals must be accompanied by amount of purchase unless credit has been established.

BUTANE-PROPANE News, 198 S. Alvarado St., Los Ang. 57, Cal.

these impressions are very important in arriving at decisions. Psychologists tell us that in nearly all cases what we see is more important in influencing our decisions that what we hear. If we are going to give this prospect the facts of conversion, it will be necessary to figure out the amount of saving based on the individual items that enter into the total. We will need to put the figures on paper, so why not put them on paper in an effective form to show to the customer and then to leave with him? Then in explaining what has been

Large-scale farmers who employ hired-help to operate their power machinery quite often find pilferage of their fuel costly. This is easy with gasoline, and almost impossible with propane.

put on paper we get the combined effect of hearing and seeing.

Now what are we going to put on paper? Where are we going to get the facts, and how are we going to present them? Any sales presentation is more effective if it is completely planned in detail before it is presented. It is most desirable to have the facts complete before showing them to the prospect and although it may be necessary at times to get the facts from him, it is preferable to get them from some other source if possible. If we can get the basic facts with reasonable accuracy before a discussion with the prospect, he is immediately favorably impressed with the extent and accuracy of our knowledge, and this is a long step toward creating the favorable buying mood.

If a prospect is already being supplied with gas by the dealer, he has the opportunity to get these facts through the observations of his servicemen when making installations or inspections, and through the questions which the delivery driver can ask from time to time while on his regular duties. The customer card record in the office should show what appliances are in the home, and from this it is easy to figure what the prospect's wife wants most.

The farmer lives with his tractor and is always willing to talk about it, particularly if he does not suspect that someone is trying to make a sale. The driver can very easily ascertain how many acres the farmer cultivates, how many hours per year he uses the tractor and how many gallons of gasoline it takes to do that

ANOTHER WESTERN TANK first

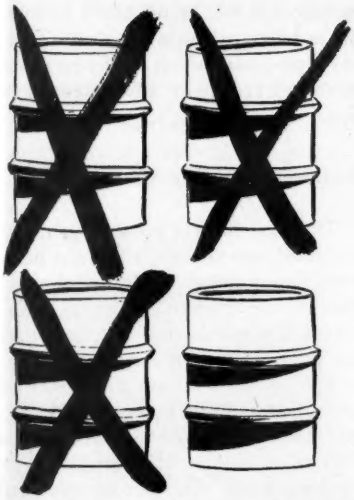
Now Available . . .

FARMALL '300'

Western LPG Tank

Because the Western LPG tank for the Farmall "300" is manufactured to close tolerances demanded by the factory, you're assured of a perfect fit every time. Western tanks are furnished in appropriate colors, with factory design for quicker, easier installation.

Western
TANK AND STEEL CORP.
POrter 5-9474 Box 1013 Lubbock, Texas



Since oil change practices vary with different tractor operators when using LPG or gasoline, a conservative promise would be the elimination of three-fourths of the prospect's oil changes.

amount of farming. Or if the farmer reports his gasoline consumption in terms of dollars per year, it is a very simple matter to figure this back to gallons. These facts provide all the information that is needed to make an effective presentation to the farmer.

Now all that is needed is a form on which the necessary calculations and proposals can be entered. The form shown in *Fig. 1* has been used very extensively and successfully by the Century Gas Equipment Co., dealers. It gives the necessary financial facts, clearly, concisely, and effectively. It needs only to be properly explained to become extremely convincing. It is arranged for the complete analysis of the conversion of an entire fleet of tractors or vehicles. And the more that can be included in the calculation the more impressive the figures representing the annual saving become.

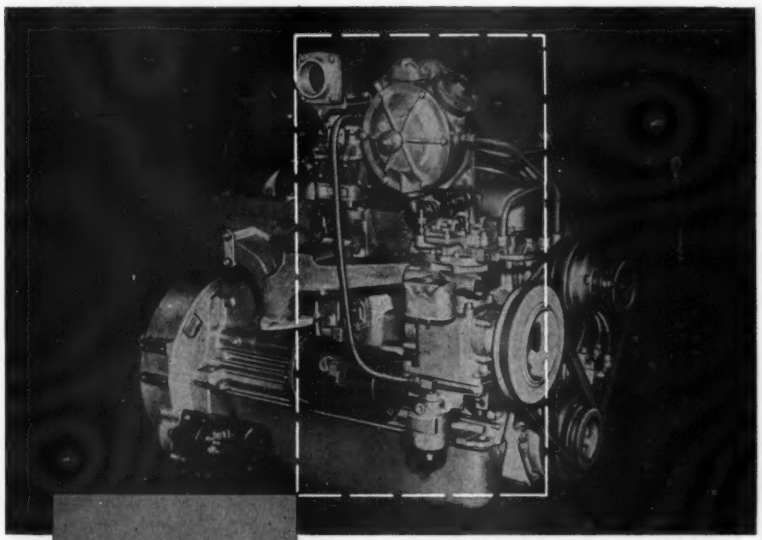
This form may be copied by any dealer who wishes to use such a sales procedure, or it may be modified in any way that the dealer sees fit to make it more effective for his own presentation. To it we would suggest adding a second sheet to list the various things that the promised saving will buy.

Quite a few of the larger LPG distributing companies which are able to stand the extra expense because of operation through multiple branches, are providing their salesmen with a dressed-up cover in which the calculation sheets and supporting statements may be enclosed. These covers are nearly always arranged so that the presentation may be personalized for that particular customer. For example, the cover may show that this is a "proposal to Fred Russell for the conversion of five tractors and a farm truck, with estimated savings of $2140 per year."

All of these little professional touches make selling easier and more effective. Since most of this work must be gone through in any event in discussing the sale, the adoption of such a system will make it easier to do the job in the most productive manner possible.

As the information becomes available, the salesman should accumulate a supply of testimonial letters which substantiate the estimates and promises made on the other sheet of the sales presentation. In making up the completed proposal, mimeographed or otherwise duplicated copies of these testimonial letters may be clipped right in with the other sheets.

These testimonials should be se-



Equipped for longer life and lower costs!

REO TRUCK ENGINES use ALGAS LP-Gas carburetion equipment

As the use of LP-Gas, the modern fuel, increases more and more leading engine and truck manufacturers are choosing ALGAS to power their equipment. REO is one of many automotive leaders who made exhaustive tests before placing their stamp of approval on ALGAS LP-Gas carburetion equipment. REO'S fine performance record continues unexcelled with LP-Gas operation that brings longer engine life and lower costs. ALGAS is proud to furnish the equipment for this advanced REO engineering.

Write or wire today for complete information on ALGAS equipment

BUTANE ALGAS PROPANE NATURAL GAS

Established 1932 AMERICAN LIQUID GAS CORPORATION
1109 Santa Fe Avenue • Los Angeles 21, California

cured from farmers having all types of operations, and a good geographical scattering throughout your trade territory will be a great advantage. If you can accumulate from 12 to 20 of these testimonials, you will then have sufficient range to prove any point that you wish to bring up by reference to a neighbor of the man that you are trying to sell. When it comes to convincing doubtful prospects, the voice of experience is far more potent that the voice of the salesman.

The written form of presentation may be used most effectively if made up complete in advance. This is particularly true where the farmer operates a fleet of power units. The salesman may go to the prospect and say, "I believe that we can save you $2000 in the course of the next year and keep your tractors available for use more of the time than they have ever been in the past. Would you mind checking these figures to see if I have your fuel consumption and a few other facts correct."

The psychology of this approach is as sound as can be developed. The prospect is not being asked to buy; he is being asked to check the facts on a proposal which might turn out to be extremely advantageous to him.

Estimate Quickly Made

The same form of presentation may be used even though it has not been possible to gather the basic information on the operator's business in advance. The salesman merely says that he believes that he can save the operator quite a substantial sum of money, and if the prospect will supply a few basic figures a definite estimate of the savings can be very quickly made. He then proceeds to find out the information on hours of use and gallons of fuel consumed, plus whatever else he thinks may be necessary.

In connection with many of these deals it will be necessary to discuss the matter of storage for the fuel. If the prospect already has a tank of adequate size to supply his domestic fuel, it may be possible to use this as it stands to supply the tractors. The chances are that it must be fitted with some means of withdrawing fuel into the tractor tank—a connection to a bottom outlet, or a withdrawal adapter if there is no bottom outlet. Or the tank may not be large enough, or the farmer may not have a tank.

Pump Saves Time

The farmer can fill his tractor tanks faster if he has a pump to make the transfer. The saving in time is worth a lot to him during a busy season, and the pump avoids the temptation to vent the tractor tank to atmosphere to speed up the transfer, which is not a recommended practice.

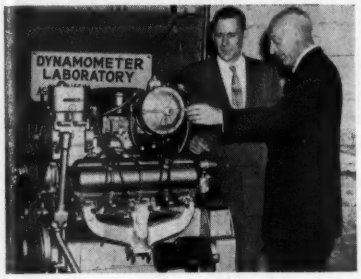
All of these details of fuel supply must be entered into the consideration of costs of conversion. You will be asking your prospect to put up a considerable sum of money, either all at once or in payments over a period of time. The sales plan should include the means of financing the conversion and the fuel supply system, and the terms should sound as easy as possible. The best way to make the investment acceptible to the prospect is to convince the prospect that the results are highly desirable before the matter of cost comes up.

DEPENDABLE
STARTS EASY ON COLD MORNINGS
FULL POWER ALL DAY
3C Controlled Combustion Carburetion
CENTURY LP-GAS CARBURETORS
WITH Years ahead METERING VALVE SYSTEM
UL
STARTS INSTANTLY upon installation.
GIVES INSTANT POWER—no choking or fluttering.
IDLES PERFECTLY.
BALANCES POWER of each cylinder.
NO MULTIPLE ADJUSTMENTS—tune up only.
PERFORMS AT ALL speeds to pre-set perfection.
Easy Starting! Perfect Idling! Economy!
CENTURY GAS EQUIPMENT CO. 11188 Long Beach Blvd., Lynwood, Calif.

Power Products

To secure further information on these products, refer to coupon on page 97.

32. V-8 LPG Engine



Reo Motors Inc. is introducing a V-8 L.P. gas engine which develops 220 hp. The engine will go into production at an early date and will be available in volume in 90 to 120 days.

According to the manufacturer, with the lighter, more efficient and less expensive engines using low-cost fuel, Reo is able to obtain fuel savings in excess of 1½ cents per mile. Furthermore, engine life is increased up to 200% over that of gasoline engines.

When a major rebuild is necessary, the Reo L.P. gas engine costs about a third as much as is required to overhaul a diesel. These advantages cannot be achieved by the conventional adaptation of today's average gasoline engines which are designed for 75 octane fuel; a 115 octane fuel requires a 115 octane design.

Reo Motors Inc.

33. Industrial Trucks

And informative booklet which gives a great deal of factual data about the cost of operating internal transportation equipment on L.P. gas, has just been published by the American Liquid Gas Corp.

Entitled "The Aircraft Story," this booklet gives complete information of a test made by Douglas Aircraft Co., Santa Monica, Calif. (See BPN, May, P. 174), and also tells the results obtained by Lockheed Aircraft Corp. after converting the entire fleet of material handling units in their Burbank, Calif., plant to L.P. gas operation. (See BPN, Dec., 1954, P. 163.)

The booklet tells what savings may be expected in fuel costs, oil consumption, overall operation, and maintenance. It was compiled for general distribution by the company which made the entire conversions for both organizations.

American Liquid Gas Corp

34. Conversion Kit

A complete conversion kit for the models 14 and 23 Briggs & Stratton has been announced by Zenith Carburetor division, Bendix Aviation Corp. The system is designed for vapor withdrawal from an ICC cylinder, using a conventional primary regulator, and secondary regulator integral with the carburetor. The kit has been approved by the Briggs & Stratton service and engineering departments.

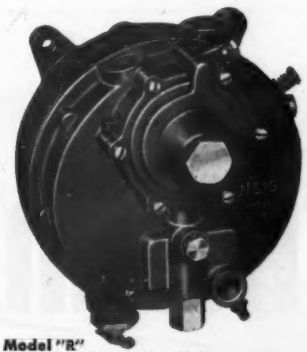
Zenith Carburetor division
Bendix Aviation Corp.

35. Fork-Lift Trucks

The Parkdale Co., manufacturer of Beam butane-propane carburetion equipment, has printed 25,000 copies of a booklet on the use of L.P. gas in fork-lift trucks.

Content includes reprints from national magazines on the savings of-

1. LOWER FUEL COSTS
2. INCREASED ENGINE POWER
3. LONGER LUBE OIL LIFE
4. GREATER ENGINE TORQUE MORE LUGGING POWER
5. LESS ENGINE MAINTENANCE — FEWER OVERHAULS
6. SMOOTH RUNNING ENGINE—NO VIBRATION —NO PING
7. ENSIGN CARBURETORS ARE EASY TO START, EASY TO ADJUST


Model "R" Vaporizer-Regulating Unit

LP-Gas Operation At Its Best

ENSIGN

CARBURETION

Superior in Performance
Nationally accepted

Model "Xg" Gas Carburetor

Model "Kgnl" Combination Gasoline and LP-Gas Carburetor

LP-Gas Filter

When you convert a gasoline tractor or an industrial engine to LP-Gas you show the owner a handsome profit. Furthermore, with Ensign Carburetion you improve the operation of his tractor, reduce his operating expense and make him a real friend. When you convert an engine to LP-Gas insist on Ensign equipment and assure yourself and the customer that the carburetion you use is the best at any price. Leading tractor manufacturers have adopted Ensign for their popular LP-Gas models. Get all the facts from Ensign, the pioneer in LP-Gas carburetion. More tractor conversions are made using Ensign than any other make. Ensign factory representatives will be glad to consult with you.

ENSIGN CARBURETOR COMPANY
7010 SOUTH ALAMEDA ST., P. O. BOX 229, HUNTINGTON PARK, CALIF.
Branch Factory: 2330 West 58th Street, Chicago 36, Illinois

fered by conversion, lower maintenance costs, better engine performance and longer life; cost comparisons of gasoline, electrically operated vehicles and L.P. gas; safety analyses; installation information and a description of liquefied petroleum gas, as well as a brief history of the manufacturer.

Each copy is accompanied by a reprint of the series of three articles which appeared in the January, February, and March, 1955, issues of BUTANE-PROPANE *News*.

The Parkdale Co.

Fall Directory Will List LPG Motor Fuel Stations

A. W. Gruer Jr., chairman of the Liquefied Petroleum Gas Association Market Research Committee, announced that arrangements have been completed for compiling a directory of L.P. gas motor fuel stations in the United States that is slated to appear in late fall.

The directory will be available at cost to all L.P. gas producers, wholesalers, distributors and dealers. It will also be available for sale to operators of L.P. gas trucks, buses, and other motor vehicles.

It is anticipated that the publication of this directory will play an important role in increasing L.P. gas motor fuel sales. Its coverage is expected to provide listings of all points in the United States where trucks, buses, and other vehicles can obtain L.P. gas. The directory will contain complete listings, including address or location, hours of operation, product available, telephone, repair facilities, pumping facilities, etc. The booklet will be prepared in a handy form for storage either in the glove compartment or on the sun visor of the vehicle.

Anyone who has facilities for serving L.P. gas powered motor vehicles and who is interested in being listed in this directory should obtain one of the survey forms from LPGA headquarters in Chicago.

LPG Tractor Sales Jump 139 Percent This Year

Recent government reports revealed that L.P. gas factory-equipped tractor sales during the first three months of this year have jumped 139% over sales figures reported for the same period last year.

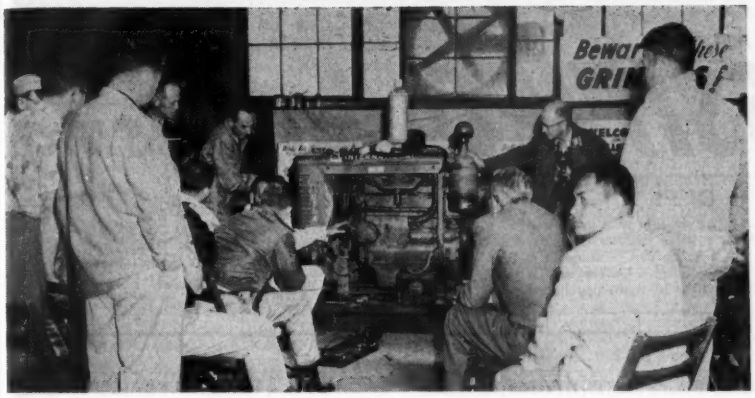
Although this government report does not cover the sales of L.P. gas conversion carburetor kits, its impact is still highly significant. A total of 3068 L.P. gas tractors were sold during January, February, and March of this year, compared to a total of 1283 during the same period last year. Sales figures compiled by the department of commerce in their monthly report covering all tractor sales, also revealed that a total of 4848 L.P. gas factory-equipped tractors were sold during all of 1954.

Should this rate of sales continue, the L.P. gas industry can expect the sale of L.P. gas factory-equipped tractors to top 10,000 units during the current year, better than doubling last year's high.

Annual reports, published by the Liquefied Petroleum Gas Association early this year, revealed that close to 200,000 L.P. gas tractors were operating throughout the nation at the close of 1954. Conversions of gasoline and diesel tractors to L.P. gas last year totaled over 37,000.

Petrolane Trains Men in Carburetion Sales, Service

Recognizing the growing importance of carburetion as a means of increasing gallonage and balancing the seasonal load, Petrolane Gas



Cy Shaddy, Petrolane Gas Service, Inc. (left), veteran carburetion man, is shown instructing a class of the recently inaugurated Petrolane training program to help personnel in selling and installing L.P. gas conversions. Sixty men attended the first school held this past spring.

Service Inc., Long Beach, Calif., has recently inaugurated a training program to help the personnel of the company's 40-plus branches in selling and installing L.P. gas conversions. The first school held under this program during the past spring had an attendance of 60 men, including both company personnel and customer mechanics.

Instruction was in the hands of veteran carburetion men—Cy Shaddy, Joe Ballard, John Harris, and Truman Parkinson from the Petrolane organization, and Roy Mylander, service engineer for Ensign Carburetor Co. The sessions were held at the company's headquarters in Long Beach, using a full quota of demonstration installations and instruments. The various steps in making a conversion, and the use of testing instruments in making final adjustments and in handling service problems were demonstrated. An intensive session on troubleshooting completed the mechanical instruction.

Sales and service problems connected with tractor, truck, stationary engines, taxis, and fork lifts were included in the program, and an extra feature was an L.P. gas safety demonstration by Bill Richards, safety engineer for Petrolane.

76,673,277 LPG Bus Miles Driven During Past Year

Transit companies operating buses on liquefied petroleum gas drove the buses to a new high of 76,673,277 total miles in 1954, results of a national survey by the Liquefied Petroleum Gas Association reveal. Along with this new peak (an increase of 16 million miles over 1953 reports) there was an increase of over 17% in the number of L.P. gas-powered buses in operation at the close of 1954.

A total of 1951 buses were operating during 1954 with 117 contemplated additions to this growing fleet for 1955. The 117 L.P. gas buses on order indicated that the industry will have close to 2100 buses in operation at the close of 1955.

The poll was conducted by the LPGA Market Research Committee and controlled and tabulated by the market research and statistical department of LPGA.

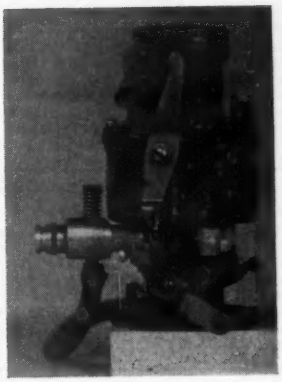
Opinions of operators showed a

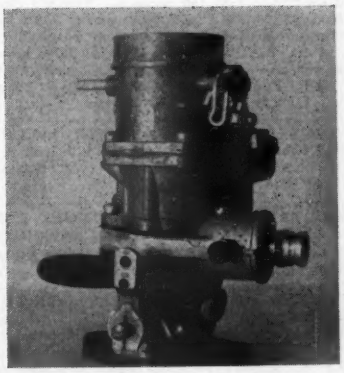
SANDWICH ADAPTERS...

ANOTHER J.&S. ACHIEVEMENT

For CHEVROLET

This popular Adapter fits the Rochester Carburetors used on Chevrolet cars and trucks since 1950. For list price $12.50, you can assemble your Combination Gasoline-LPG Carburetor in five minutes. The Model CRA 1½ Sandwich Adapter can be used with most makes of conversion units.





For GMC TRUCKS

and other engines using the Zenith Z8 Series Carburetor, J.&S. offers the ZA-28 Sandwich Adapter, $9.50 list. Gas enters the carburetor exactly at the proper point in the venturi. The air cleaner fits. No changes to make on choke and throttle levers. Adjusting block #1 AB is $3.60 extra. Ask about our Dealer Discounts.

J.&S. CARBURETOR COMPANY
P.O. BOX 10391 DALLAS, TEXAS
"TWENTY YEARS IN GAS CARBURETION"

BPN CLASSIFIED Advertising

All Classified Advertising payable with order. Copy must reach publisher's office prior to the fifth of the month preceding publication. Address: Classified Advertising Material, BUTANE-PROPANE News, 198 S. Alvarado Street, Los Angeles 57, Calif.

DISPLAY CLASSIFIED

$12.00 a column inch per issue. Choice of 18, 14, 12, 10 pt display type for headings. Set with 1 pt border. Maximum ad size 3". No cuts permitted. Publisher will set ad for maximum effect in space purchased.

UNDISPLAYED CLASSIFIED 15¢ a word. Set in 7 pt type without border. $3.00 minimum charge per insertion. If Blind Box number care of B-P News is used, count as five words.

HELP WANTED

WANTED—SALES MANAGER. WE SELL an intangible called "better living." If you have vision, willingness to work hard, a college education, opportunity awaits you with a southern Indiana L. P. Gas Company. Reply Box 745, BUTANE-PROPANE News, 198 S. Alvarado St., Los Angeles 57, Calif.

SALESMAN, EXPERIENCED IN LP GAS Carburetion, Heating and Appliances. Permanent position. Salary or commission. California's rich San Joaquin Valley area. Reply Box 730, BUTANE-PROPANE News, 198 S. Alvarado St., Los Angeles 57, Calif.

WANTED: AGGRESSIVE SALES REPresentative and sales trainee for L.P. gas and Anhydrous Ammonia system sales. Free to travel. Previous sales experience and knowledge of L.P. gas industry helpful. State complete background and sales experience in application to: Manager, LPG & NH3 Equipment Sales Division, The J. B. Beaird Co., Inc., P.O. Box 1115, Shreveport, Louisiana.

LEADING MANUFACTURER OF LPgas equipment is seeking two high-type, aggressive territory representatives. One to cover Missouri, Kansas and Nebraska, and one for the New England area. Salary and commission. A real opportunity for go-getters. Reply Box 735, BUTANE-PROPANE News, 198 S. Alvarado St., Los Angeles 57, Calif.

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However, these inherent cost-shaving factors were not taken into consideration in the LPGA survey. Respondents were asked simply to offer comparative statistics on gas and oil consumption, maintenance costs, mileage figures, oil change policies, and so on. It is in comparing the data with 1953 reports that the figures comply with the general upward trend portrayed in the 1954 study.

Some firms still adhere to maintenance procedures followed under gasoline or diesel operations, but this tendency seems to be fading with such facts substantiating the trend as the oil change interval now occurring every 11,386 miles. The fleets averaged 3.68 miles per gal. on L.P. gas, with 39% of the respondents finding this mileage the same as experienced with gasoline operations, and 61% poorer.

Compensating for some operators' poor miles-per-gallon average is the average savings in cost per gallon of L.P. gas (6.64 cents) which more than offsets low mileage figures. Maintenance costs as compared with previous gasoline or diesel operations were found to be cheaper by 87% of the operators; none found maintenance costs higher. Over 91% of the operators have their own storage facilities with the remainder utilizing their L.P. gas dealer's storage points. Total storage amounted to 591,562 gal.

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